

**FINAL  
ENVIRONMENTAL ASSESSMENT  
ADDRESSING  
FTFA 07-1174, REPAIR APPROACH LIGHTING SYSTEM  
AT THE NORTH END OF RUNWAY 01/19  
AT  
EGLIN AIR FORCE BASE, FLORIDA**



**MAY 2013**

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**FINDING OF NO SIGNIFICANT IMPACT  
FINDING OF NO PRACTICABLE ALTERNATIVE  
REPAIR APPROACH LIGHTING SYSTEM  
AT THE NORTH END OF RUNWAY 01/19  
EGLIN AIR FORCE BASE, FLORIDA**

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Pursuant to the Council on Environmental Quality regulation for implementing the procedural provisions of the National Environmental Policy Act (NEPA), Title 40 of the Code of Federal Regulations (CFR) §§ 1500–1508; Air Force Environmental Impact Analysis Process (EIAP) regulations 32 CFR § 989 and Department of Defense Directive 6050.1, the Air Force has prepared an Environmental Assessment (EA) to identify and assess the potential impacts on the natural and human environment associated with repairing the approach lighting system at the north end of Runway 01/19 at Eglin Air Force Base (AFB), Florida.

**Background (EA § 1.1, pages 1-1 and 1-2):** The existing creosote-treated, wooden airfield approach lighting structures and supports at the north end of Runway 01/19 were built in 1970. Visual inspections indicate the existing support piles have severely deteriorated and do not provide a safe platform for maintenance crews. Because the lifespan of creosote-treated timber support piles ranges anywhere from 40 to 75 years, it is reasonable to assume these structures have reached their desired structural performance life. In addition, the existing approach light structures are located in Tom's Creek, an environmentally sensitive habitat area for the federally listed Okaloosa darter. The existing timber structures (piles and cross-members, along with a timber walkway adjacent to the structures along their base) are pressure-treated with creosote. Although the extent and concentrations are unknown, the creosote is likely leaching into the water and could present an environmental concern for the Okaloosa darter.

**Purpose of and Need for the Proposed Action (EA § 1.3, page 1-2):** The primary purpose of the Proposed Action is to maintain the approach lighting at the north end of Runway 01/19. Based on the age and condition of the existing runway approach lighting structures, repairing the approach lighting system at the north end of Runway 01/19 is required to provide a safe platform for maintenance and bring the system into compliance, to the maximum extent feasible, with all federal, state and local regulations/codes, and environmental and aviation requirements.

**Resource Areas Eliminated from Further Analysis (EA § 1.5.1, pages 1-6 to 1-7) and Resource Areas Identified for Further Analysis (EA § 1.5.2, pages 1-7 to 1-8):** Environmental analyses focused on the following areas: air quality, human health and safety, hazardous materials and wastes, soils, water resources, biological resources and infrastructure. The project area is located on USAF property, which consists primarily of developed land/airfield and urban areas. No changes or incompatibilities in land use would occur from construction and demolition. Therefore, further analysis relating to land use was not warranted. In 1995, the area was surveyed for cultural resources. Findings showed no archaeological or historical properties present within the bounds and SHPO concurred with these findings on December 6, 1995. In addition, the closest low-income, minority, and children populations are approximately 2 miles away from the project site. No low-income or minority populations would be anticipated to bear a disproportionate share of adverse socioeconomic or environmental impacts by the construction and demolition activities since impacts would not be expected beyond the bounds. Because these resource areas do not exist within the project site, cultural resources, environmental justice and safety and health risks to children were eliminated from further analysis.

**Description of the Proposed Action and Alternatives (EA § 2.1 to 2.2, pages 2-1 to 2-7):** The Proposed Action consists of repairing the approach runway lighting system at the north end of Runway 01/19. In accordance with Unified Facilities Code 3-535-01, an overall system length of 3,000 feet extending from the runway threshold into the approach zone is required. However, if terrain or other local conditions



prevent a full-length installation, the system may be shortened to not less than 2,400 feet. Currently, Runway 01/19 is operating under a waiver (Waiver Number PWO5-0910-EGL) for a 1,500-foot system that matches the existing site conditions based on gradient (i.e., terrain) and because the land beyond 1,500 feet does not belong to the Air Force. In addition, to comply with UFC 3-535-01, Section 3-1.4.3, Obstruction Clearances, all alternatives will require selective vegetative clearing in the approach zone within a 200-foot-wide area as measured from each side of the runway centerline and 200-feet from the runway threshold and before the start of the approach zone and the inclusion of BASH reduction initiatives into design.

The range of alternatives considered to meet the purpose of and need for repairing the runway approach lighting included seven action alternatives and a No Action Alternative. Four action alternatives (Alternatives 1, 2, 3, and 6) were considered but were eliminated from further analysis because they did not satisfy the environmental considerations or the core selection criteria. The factors to eliminate alternatives included a high potential to impact water quality and wetlands, a low degree of safety for maintenance personnel and they were not economically feasible as it relates to long-term maintenance costs. Alternatives 5 and 7 satisfy the environmental considerations and the core selection criteria, and meet the purpose of and need for the Proposed Action. In addition, Alternative 4, although it doesn't meet the full extent of the environmental considerations and core criteria, was carried forward in order to analyze at least one alternative utilizing stainless-steel sleeves around existing piles without installing new piles. This determination was made to validate the analysis of the alternatives. Therefore, Alternatives 4, 5, and 7 were carried forward for further detailed analysis in the EA. As required by NEPA and the Air Force's EIAP regulations, the No Action Alternative was carried forward for analysis to allow a detailed comparison of baseline conditions with the Proposed Action. Under the No Action Alternative, Eglin AFB would not repair the approach lighting system at the north end of Runway 01/19 on Eglin Main. The existing conditions would remain unchanged and the lighting system would not only remain noncompliant with regulations and requirements, but would also continue to degrade and present unsafe conditions.

Alternative 5 has been identified as the Preferred Alternative based on both the level of safety provided for electricians conducting future maintenance and the environmental benefits of removing all creosote-treated timber from the stream, walkway and cutting the piles within the wetlands and floodplains at the mud-line.

Construction activities associated with the repair of the approach runway lighting system at the north end of Runway 01/19 under the Preferred Alternative would include (1) constructing a temporary structure across the stream to allow for construction equipment access during runway lighting improvements; (2) demolishing the entire system and removing the piles from the stream and walkway and cutting the piles in the wetlands and floodplains at the mud-line; (3) installing new concrete or steel piles and constructing a rigid platform above the waterline and installing an OSHA-approved ladder to access the platform; (4) mounting a frangible or semi-frangible lighting structure to the platform, which can be lowered for electricians to safely change the bulbs; and (5) replacing the walkway with steel or concrete piles and non-combustible construction.

### ***Summary of Potential Environmental Consequences***

***Air Quality (EA § 3.1, pages 3-1 to 3-3):*** The upgrades proposed under the Proposed Action will result in temporary, minor emissions associated with demolition or modification of the existing lighting system, fugitive dust from ground-disturbing activities (e.g., grading, soil piles), and greenhouse gases through the combustion of fossil fuels associated with the use of vehicles and equipment. The Proposed Action is located in an area which is designated attainment for all of the National Ambient Air Quality Standards under the criteria provided in the Clean Air Act; therefore, the Clean Air Act conformity requirements do not apply to the project. No significant impacts will occur on air quality from improvements associated

with the Proposed Action. Mitigation is not required from the activities associated with the Proposed Action.

**Human Health and Safety (EA § 3.2, pages 3-6 to 3-9):** Short-term, minor, adverse impacts on potential health and safety conditions from contaminated materials, noise, electrical system hazards, and biological hazards will be expected from implementation of the Proposed Action. No Explosive Safety Quantity-Distance (ESQD) areas exist in the immediate vicinity of the project area. Therefore, no impacts to ESQD areas will occur. The health and safety of contractors performing work at the project area will be managed by adherence to established federal, state, and local safety regulations as well as their company's health and safety programs. The handling, storage, transportation and disposal of contaminated materials, including creosote piles, will be conducted in accordance with the installation's Hazardous Waste Management Plan and federal, state and local regulations for hazardous waste disposal. Construction workers will be exposed to periodic high noise levels during implementation of the Proposed Action. The noise from construction equipment and aircraft approaching the runway will be localized, short-term and intermittent during machinery operations and flight operations. Construction and maintenance personnel will be working in close proximity to high voltage electrical distribution line(s) that runs along the north (contractor) security gate road as well as an area where venomous snakes, alligators, spiders, scorpions and stinging insects occur. Special precautions will be taken to avoid contact/encounters with these hazards. Therefore, no significant impacts on human health and safety will occur and no mitigation is required from the activities associated with the Proposed Action.

**Hazardous Materials (EA § 3.3, pages 3-10 to 3-12):** Construction and demolition activities associated with the Proposed Action will involve the use of hazardous materials, and the generation of hazardous and solid wastes. All handling, storing, transporting and disposing of hazardous materials will be in accordance with applicable federal and state regulations. Implementation of best management practices (BMPs) and environmental protection measures will ensure no long-term, adverse impacts will occur. Therefore, no significant impacts from hazardous materials will occur and no mitigation is required from the activities associated with the Proposed Action.

**Soils (EA § 3.4, pages 3-13 to 3-15):** Soils will be temporarily impacted during the activities proposed under the Proposed Action. There will be increased potential for soil erosion and sediment displacement. Soil erosion will be limited by adhering to construction BMPs for work within wetlands and floodplains. The removal of all creosote piles at the mudline and related structures and the installation of new steel or concrete piles will have a long-term, beneficial effect by eliminating potential continued creosote leaching into the soils. Therefore, no significant impacts on soils will occur and no mitigation is required from the activities associated with the Proposed Action.

**Water Resources/Wetlands (EA § 3.5, pages 3-19 to 3-21):** Surface waters, wetlands, and floodplains will be temporarily impacted during the demolition and construction activities associated with the Proposed Action. There will also be long-term, minor floodplain impacts associated with construction of a temporary access structure, demolition, removal, and cutting of piles at the mud-line, installation of new piles and replacement of walkway with steel or concrete piles and non-combustible construction. Because Tom's Creek has been classified as jurisdictional waters of the United States, the Proposed Action will require a permit under Section 404 of the Clean Water Act from the U.S. Army Corps of Engineers and from the state of Florida under the Environmental Resource Permit program. This permit will specify all required mitigations. Regarding the 100-year floodplain, all construction will be in accordance with all applicable local and state zoning and building requirements that apply to the proposed site. There will be long-term, beneficial effects on surface water, wetlands and floodplains from the removal of piles from the stream and walkway, and cutting piles within the wetlands and floodplains at the mudline, and installation of new steel or concrete piles, which will reduce or eliminate the potential continual leaching of creosote compounds into wetland soils and surface waters. Therefore, no significant

impacts on water resources/wetlands will occur and no mitigation is required from the activities associated with the Proposed Action.

**Biological Resources (EA § 3.6, pages 3-27 to 3-31):** Habitats and wildlife will be temporarily impacted during the demolition and construction activities associated with the Proposed Action. Impacts on sandhills and wetlands/riparian matrix habitats will affect less than 1 percent of available habitats on Eglin AFB and impacts on the installation's habitats will be reduced with the implementation of BMPs and environmental protection measures. Most wildlife will be expected to relocate temporarily from areas immediately surrounding the site to suitable habitat adjacent to the area and will likely return following project completion. Local wildlife is already exposed and habituated to visual and noise disturbances from aircraft activity. Impacts on wildlife will be further reduced with the implementation of BMPs and environmental protection measures. Construction and demolition activities will result in temporary, localized impacts on threatened and endangered species and species of special concern. Impacts on sensitive species will be reduced with the implementation of BMPs and environmental protection measures. There will be no impacts on the black bear, Eastern indigo snake, Florida pine snake or gopher tortoise from runway lighting improvements. Eglin's Natural Resource Section (NRS) has determined there will be no significant impacts on the Okaloosa darter since its presence has not been documented during past surveys or surveys conducted on April 25, 2013, ("No Effect" determination letter, dated April 29, 2013, and USFWS acknowledgment dated May 1, 2013, (FWS Log No. 04EF 3000-2013-I-0167)). Established construction methods will be used to minimize impacts on darter streams. There will be a long-term, beneficial effect for Okaloosa darters because piles potentially containing leaching creosote will be removed from the stream and no obstructions will be placed back into the stream. Therefore, no significant impacts on habitats and wildlife, including threatened and endangered species and species of special concern, will occur and no mitigation is required from the activities associated with the Proposed Action.

**Utilities and Infrastructure (EA § 3.7, pages 3-33 and 3-35):** Temporary impacts on the transportation network, water supply, and storm water drainage will be expected from construction and demolition activities. Any potential increases in traffic volumes associated with construction and demolition activities including material deliveries and debris removal will be temporary. The contractor will be required to implement a Maintenance of Traffic Plan. Alternative gates will be available in the event of temporary road closures during utility relocations or interruptions. Construction and demolition activities will require minimal amounts of water, primarily for dust-suppression. This water will be obtained from the installation's water supply system. Since construction activities will be staggered, any potential increases in water demand will be temporary, intermittent and minimal. The Proposed Action will not alter existing storm water drainage methods or significantly increase the amount of impervious surfaces at the installation. However, runoff from construction and demolition activities can flow into nearby receiving water bodies and slightly increase turbidity. Potential impacts on water supply and storm water drainage will be reduced with the implementation of BMPs and environmental protection measures. Therefore, no significant impacts on transportation, water supply and storm drainage will occur and no mitigation is required from the activities associated with the Proposed Action. Construction and demolition activities will result in long-term, beneficial impacts related to the electrical system. Repairing the approach lighting system will increase the reliability of the electrical power at Runway 01/19, provide for better maintenance of the lighting system and extend out the service life of the lighting system; therefore, no significant impacts on electrical systems will occur and no mitigation is required from the activities associated with the Proposed Action. No impacts on the sanitary sewer and wastewater system will be expected from construction and demolition activities. There will be no increase in the demand for sanitary sewer and wastewater treatment. Repair of the runway lighting system will result in temporary and long-term impacts on solid waste disposal. Construction and demolition debris that is not recycled will be disposed of in one of the landfills on Eglin AFB, which will be considered a long-term, irreversible, adverse impact. Construction debris is generally composed of clean materials, and most of



the construction debris will be recycled. Potential impacts will be reduced with the implementation of BMPs and environmental protection measures. Therefore, no significant impacts on solid waste disposal will occur and no mitigation is required from the activities associated with the Proposed Action.

***BMPs and Environmental Protection Measures (EA § 4.0, pages 4-1 to 4-7):*** The proponent has committed to complying with the BMPs and environmental protection measures associated with the Proposed Action. BMPs and environmental protection measures were identified for the following categories and are summarized briefly in this subsection: human health and safety, hazardous materials and wastes, soils, water resources, biological resources and infrastructure. Refer to the EA for more detailed information on the BMPs and environmental protection measures. No BMPs or environmental protection measures were identified for air quality.

***Human Health and Safety (EA § 4.0, pages 4-1 to 4-3):*** Typical industrial safety standards and BMPs will be followed including implementing procedures to ensure equipment guards and personal protective equipment (PPE) are in place; establishing programs and procedures regarding right-to-know, hearing conservation and heavy equipment operations; performing regular safety inspections; developing a plan of action for the correction of any identified hazards; and following safety regulations and worker compensation programs. To protect people from inadvertent and potentially harmful releases of hazardous substances, Eglin's Hazardous Material Emergency Planning and Response Plans or Spill Prevention Control and Countermeasures (SPCC) Plans will be followed. Construction workers will implement feasible administrative or engineering controls to address noise issues and would use BMPs such as wearing hearing PPE to maintain compliance with applicable OSHA standards. Prevention and treatment methods for biological hazards including ants, bees, wasps, hornets, spiders and snakes will be followed. The ERP site will be avoided and ERP infrastructure such as monitoring wells, treatment systems and conveyance pipes will be protected to avoid disruption of clean-up activities and minimize potential impacts on ERP infrastructure. All applicable environmental and safety requirements for hazardous materials as identified by Air Force Instruction (AFI) 32-1023, *Design and Construction Standards and Execution of Facility Construction Projects*, will be followed.

***Hazardous Materials and Waste (EA § 4.0, pages 4-3 and 4-4):*** Contractors will be responsible for the management of hazardous materials and petroleum products, which will be handled in accordance with federal, state and USAF regulations. Hazardous wastes will be handled under the existing Department of Defense Resource Conservation and Recovery Act compliant waste management programs. Prior to commencement of construction activities, the contractor will be required to obtain the necessary permits. All applicable environmental and safety requirements for hazardous materials, as identified by AFI 32-1023, *Design and Construction Standards and Execution of Facility Construction Projects*, will be followed. BMPs and protection measures will be implemented to control turbidity and sediments that might contain creosote and which could temporarily re-enter the water column during pile removal.

***Geological Resources (EA § 4.0, page 4-4):*** BMPs will be implemented and an approved erosion-and-sediment-control plan (ESCP) will be followed to reduce effects of ground disturbance leading to increased erosion. The site will be re-graded to pre-construction elevations to allow for the natural recruitment of vegetation.

***Water Resources (EA § 4.0, page 4-5):*** BMPs will be implemented and an approved erosion and sediment control plan, spill prevention plans and clean-up plans will be followed. All construction BMPs will be approved by Eglin AFB Civil Engineering Department. The construction site will also be subject to onsite inspections to ensure sediment and erosion controls are compliant with the permitting requirements and that appropriate housekeeping measures are being employed. All fuels and other potentially hazardous materials will be contained and stored appropriately. In the event of a spill, procedures identified in the Eglin AFB SPCC Plan will be followed to contain and clean up a spill quickly.

A Florida Department of Environmental Protection (FDEP) Environmental Resource Permit will need to be obtained prior to the initiation of construction activities. An Individual Permit under Section 404 will also be required. Site design and construction methods will avoid impacts on water resources to the maximum extent possible and BMPs and ESCPs would be implemented. To limit adverse impacts in wetland areas, methods that limit rutting or damaging soils, such as construction mats, will be used. Over the open water of Tom's Creek, at a minimum, a raised work structure will be used. After construction, the wetland mats and temporary raised work structure will be removed allowing for natural recruitment of vegetation to the disturbed areas.

**Biological Resources (EA § 4.0, pages 4-5 to 4-7):** Okaloosa darter protection and habitat protection to minimize impacts from all the construction activities will be implemented. The ESCP will include plans for revegetation of stream banks and riparian areas, as needed. A 100-foot vegetative buffer will be implemented, where possible and ramp-up procedures implemented for hammer use. Feasibility for net blocking will be assessed and contractors will be informed as to the presence of Okaloosa darters and protective measures for the species. A Section 7 consultation under the ESA would not be required.

Protective measures for terrestrial species will also be instituted and include contractor adherence to BMPs outlined in the *Indigo Snake Programmatic Biological Opinion for Eglin AFB*; coordination with Eglin Natural Resources Section (NRS) to conduct surveys for Eastern indigo snake, Florida pine snake, and gopher tortoise (including burrows) prior to construction; contractor review of information brief and brochures on the Eastern indigo snake, Florida pine snake, and gopher tortoise; and contractor avoidance of any Florida black bear, gopher tortoise, gopher tortoise burrow and habitat, Eastern indigo snake, or Florida pine snake. Contractors will spot-check construction areas to ensure early identification of infestation by invasive nonnative plant species and coordinate with Eglin AFB NRS for removal, if needed. Offsite equipment will be cleaned of invasive, nonnative species prior to use for the first time on Eglin AFB.

**Utilities and Infrastructure (EA § 4.0, page 4-7):** Prior to initiating runway lighting improvements, the construction contractor will coordinate with local utility providers before beginning ground-disturbing activities. Liquid fuels, if stored on site, will be stored in aboveground storage tanks with secondary containment. Ground-disturbing activities will avoid areas where electrical and natural gas utility lines are present.

**Bird Airstrike Hazard (EA § 4.0, page 4-7):** The Bird Hazard Working Group requires all airfield upgrades and construction projects include the consideration for making the project results less attractive for birds and wildlife. BASH reduction initiatives will be incorporated into the design.

**Cumulative Impacts (EA § 5.1.2, pages 5-3 to 5-5):** No significant cumulative impacts are projected to occur based on the construction and demolition activities associated with the Proposed Action and other reasonably foreseeable projects in the project area. Recent past actions in the project area include conversion of the 33rd Fighter Wing to the Department of Defense's first F-35 Lightning II training wing, establishment of the Joint Strike Fighter Initial Joint Training Site at Eglin AFB and realignment of the Army's 7th Special Forces Group to Eglin AFB. Reasonably foreseeable future actions in the project area include the demolition, construction and maintenance of private military family housing units at Eglin; creation of the Mid-Bay Bridge connector; and lease of Eglin AFB land and development for the Emerald Coast Technology and Research Center. Since construction-related emissions are temporary, they are not expected to result in significant cumulative effects on air quality. Construction projects could cumulatively pose a risk to workers through increases in local construction traffic accessing sites, maintenance and repair activities and noisy conditions, which could mask verbal or mechanical warning signals. Adherence to Air Force Occupational Safety and Health and Occupational Safety and Health Administration regulations will minimize the potential for adverse effects on construction workers. While all identified construction and demolition activities in the project area could increase the amount of hazardous or petroleum materials used and wastes generated within the region, these materials and wastes



will be managed by existing Eglin AFB management plans and practices. Temporary cumulative effects on soil resources could occur from ground-disturbing activities occurring at the same time and in the same vicinity. However, implementation of erosion- and sediment-control BMPs will limit potentially adverse cumulative effects. As development throughout Eglin AFB and the surrounding regions continues, water quality of surface water and wetlands could degrade. Erosion-and-sedimentation-control plans and Storm Water Pollution Prevention Plans are required under National Pollutant Discharge Elimination System permits for projects disturbing more than 1 acre, which include most of the construction projects considered in this analysis. The adherence to the National Pollutant Discharge Elimination System permitting requirements coupled with the implementation of BMPs identified for individual construction projects will minimize the cumulative potential for adverse effects to occur. Ground-disturbing activities occurring at the same time and in the same vicinity could have temporary cumulative effects on habitats and wildlife. However, these impacts will only last during those activities and will not be cumulatively significant. Considering the use of management actions to minimize the potential for adverse effects on listed species, implementation of the Proposed Action is not anticipated to have significant cumulative effects on the Okaloosa darter or other listed species when added to other current and future actions on Eglin AFB. Construction activities occurring at the same time and in the same vicinity could have temporary cumulative effects on infrastructure systems as a result of increased demand. However, infrastructure systems at Eglin AFB have adequate capacity to meet demand, so these cumulative effects will not be significant. With respect to all resources analyzed cumulatively, BMPs will be implemented, permits obtained and consultations conducted, if required, for each foreseeable future action in accordance with all federal and state regulations.

**Consultation, Coordination, and Public Involvement (EA Appendix B):** The federal agencies involved with this project include Eglin AFB, U.S. Army Corps of Engineers and U.S. Fish and Wildlife Service. The state agencies include the Florida State Clearinghouse and FDEP. A public notice was placed in the *Northwest Florida Daily News* on March 2, 2013 announcing the availability of the Draft EA and Draft FONSI/FONPA for public review and comment. The Draft EA and Draft FONSI/FONPA were made available for review on the Internet at [www.eglin.af.mil/environmentalassessments.asp](http://www.eglin.af.mil/environmentalassessments.asp) from March 2 to April 14, 2013, with comments due to Eglin by close of business April 17, 2013. Each of the libraries in Okaloosa County, Florida have computers available to the general public and librarians who can provide assistance linking to the document. No public comments on the Draft EA and Draft FONSI/FONPA were received over the 45-day comment period. On March 5, and April 19, 2013, the Florida State Clearinghouse issued their concurrence under State Application Identifier Number FL201303056517C, that the Proposed Action is consistent with the Florida Coastal Management Program. On April 25, 2013, a survey was conducted to determine the presence of Okaloosa darters within the area of potential effect. No darters were found during the survey. On April 29, 2013, Eglin NRS issued a determination of "No Effect" and on May 1, 2013, the USFWS acknowledged this determination under FWS Log No. 04EF 3000-2013-I-0167.

### **Finding of No Practicable Alternative**

Taking the above information into consideration, pursuant to Executive Orders 11988 (Floodplain Management) and 11990 (Protection of Wetlands) and the authority delegated by Secretary of the Air Force Order 791.1, I find there is no practicable alternative to conducting the Proposed Action within the floodplain or wetland and the Proposed Action includes all practicable measures to minimize harm to the environment. This finding fulfills both the requirements of the referenced Executive Order and the Air Force EIAP regulation, 32 C.F.R. § 989.14, for a Finding of No Practicable Alternative.

### **Finding of No Significant Impact**

Based upon my review of the facts and analyses contained in the attached EA, I find the Proposed Action to repair the approach runway lighting system at the north end of Runway 01/19 at Eglin AFB will not have a significant impact on the natural or human environment; therefore, an environmental impact statement is not required. This analysis fulfills the requirements of NEPA, the President's Council on Environmental Quality 40 C.F.R. §§ 1500-1508 and the Air Force EIAP regulations 32 C.F.R. § 989.



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24 June 2013

Date

## ACRONYMS AND ABBREVIATIONS

33 FW	33rd Fighter Wing	DOD	Department of Defense
96 CEG	96 Civil Engineer Group	DSL	Division of State Lands
96 CEG/ CEVR	96 Civil Engineer Group/Environmental Restoration Branch	EA	Environmental Assessment
96 TW	96th Test Wing	ECTRC	Emerald Coast Technology and Research Center
AFB	Air Force Base	EESD	Eglin Enterprise Spatial Data
AFI	Air Force Instruction	EIAP	Environmental Impact Analysis Process
AFMC	Air Force Materiel Command	EO	Executive Order
AFOSH	Air Force Occupational and Environmental Safety, Fire Protection, and Health	ERP	Environmental Restoration Program
AFPD	Air Force Policy Directive	ESA	Endangered Species Act
ANSI	American National Standard Institute	ESCP	Erosion-and-Sediment-Control- Plan
ASCE	American Society of Civil Engineers	ESQD	Explosive Safety Quantity- Distance
ATSDR	Agency for Toxic Substances and Disease Registry	FAA	Federal Aviation Administration
BA	Biological Assessment	F.A.C.	Florida Administrative Code
BASH	Bird Airstrike Hazard	FDEP	Florida Department of Environmental Protection
BMP	Best Management Practice	FEMA	Federal Emergency Management Agency
BO	Biological Opinion	FIRM	Flood Insurance Rate Map
BRAC	Base Realignment and Closure	FONPA	Finding of No Practicable Alternative
CAA	Clean Air Act	FONSI	Finding of No Significant Impact
CEQ	Council on Environmental Quality	F.S.	Florida Statute
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act	FWC	Florida Fish and Wildlife Conservation Commission
CFR	Code of Federal Regulations	GHG	greenhouse gas
CO	carbon monoxide	IICEP	Interagency and Intergovernmental Coordination for Environmental Planning
CWA	Clean Water Act	IJTS	Initial Joint Training Site
DCA	Department of Community Affairs	INRMP	Integrated Natural Resources Management Plan



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JSF	Joint Strike Fighter
kV	kilovolt
MFH	Military Family Housing
MPPCSMI	Mobile-Pensacola-Panama City-
AQCR	Southern Mississippi Interstate Air Quality Control Region
mg/m <sup>3</sup>	milligrams per cubic meter
µg/m <sup>3</sup>	micrograms per cubic meter
MSW	Municipal Solid Waste
NAAQS	National Ambient Air Quality Standards
NEC	National Electric Code
NEPA	National Environmental Policy Act of 1969
NESC	National Electric Safety Code
NFPA	National Fire Protection Administration
NHPA	National Historic Preservation Act
NO <sub>2</sub>	nitrogen dioxide
NO <sub>x</sub>	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
NRS	Natural Resources Section
NVOC	Niceville, Valparaiso, Okaloosa County
NWFWMD	Northwest Florida Water Management District
O <sub>3</sub>	ozone
OSHA	Occupational Safety and Health Administration
PAH	polycyclic aromatic hydrocarbon
Pb	lead
percent g	Percentage of the force of gravity

P.L.	Public Law
PM <sub>2.5</sub>	particulate matter equal to or less than 2.5 microns in diameter
PM <sub>10</sub>	particulate matter equal to or less than 10 microns in diameter
ppb	parts per billion
PPE	personal protective equipment
ppm	parts per million
RCRA	Resource Conservation and Recovery Act
ROD	Record of Decision
ROI	Region of Influence
SIP	State Implementation Plan
SIS	Strategic Intermodal System
SO <sub>2</sub>	sulfur dioxide
SO <sub>x</sub>	sulfur oxides
SPCC	Spill Prevention, Control and Countermeasures
SSL	Sovereign Submerged Lands (Florida)
SSR	Sites Status Report
TMDL	Total Maximum Daily Load
tpy	tons per year
UFC	Unified Facilities Criteria
UL	Underwriters Laboratories
USACE	U.S. Army Corps of Engineers
USAF	U.S. Air Force
U.S.C.	United States Code
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
VOC	volatile organic compounds
WWTP	Waste Water Treatment Plant



## **COVER SHEET**

### **FINAL ENVIRONMENTAL ASSESSMENT ADDRESSING FTFA 07-1174, REPAIR APPROACH LIGHTING SYSTEM AT THE NORTH END OF RUNWAY 01/19 AT EGLIN AIR FORCE BASE, FLORIDA**

**Responsible Agencies:** U.S. Air Force (USAF), Eglin Air Force Base (AFB), Florida.

**Affected Location:** Eglin AFB, Florida.

**Proposed Action:** FTFA 07-1174, Repair Approach Lighting System at the North End of Runway 01/19 at Eglin AFB, Florida.

**Report Designation:** Final Environmental Assessment.

**Abstract:** The USAF proposes to repair the approach lighting system at the north end of Runway 01/19 on Eglin AFB, Florida. Based on the age and condition of the existing runway approach lighting structures, repairing the approach lighting system at the north end of Runway 01/19 is required to provide a safe platform for maintenance and to bring the system into compliance, to the maximum extent feasible, with all federal, state, and local regulations/codes, and environmental and aviation requirements.

For this Environmental Assessment (EA), seven action alternatives were considered. Design Alternatives 4, 5, and 7 are carried forward for detailed analysis. Design Alternatives 4, 5, and 7 meet the purpose of and need for the Proposed Action and meet the criteria determined by Eglin AFB as necessary to repair the approach runway lighting system, while minimizing potential impacts on water quality and wetlands and potential long-term impacts on runway operations from construction.

This EA analyzes and documents potential environmental consequences associated with the Proposed Action and alternatives, including the No Action Alternative. The analyses presented in this EA indicate that implementation of the considered alternatives would not result in significant environmental impacts, and a Finding of No Significant Impact/Finding of No Practicable Alternative would be appropriate. If significant environmental issues were to be identified that could not be minimized to insignificant levels, an Environmental Impact Statement would be prepared or the Proposed Action would be abandoned and no action would be taken.





**FINAL  
ENVIRONMENTAL ASSESSMENT  
ADDRESSING  
FTFA 07-1174, REPAIR APPROACH LIGHTING SYSTEM  
AT THE NORTH END OF RUNWAY 01/19  
AT  
EGLIN AIR FORCE BASE, FLORIDA  
  
RCS: 10-525**

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*Prepared for*  
**U.S. Air Force**  
  
**Eglin Air Force Base  
Okaloosa County, Florida**

**MAY 2013**





**FINAL ENVIRONMENTAL ASSESSMENT ADDRESSING  
FTFA 07-1174, REPAIR APPROACH LIGHTING SYSTEM  
AT THE NORTH END OF RUNWAY 01/19  
AT  
EGLIN AIR FORCE BASE, FLORIDA**

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## 1. PURPOSE OF AND NEED FOR THE PROPOSED ACTION

This Environmental Assessment (EA) pertains to the approach lighting system at the north end of Runway 01/19 on Eglin Air Force Base (AFB), Florida. This EA defines the purpose of and need for improvements to the existing approach lighting system, describes the Proposed Action and alternatives, and evaluates the potential environmental impacts resulting from the Proposed Action and alternatives, including the No Action Alternative. The environmental documentation process associated with preparing the EA is being carried out in compliance with the National Environmental Policy Act of 1969 (NEPA); the regulations implementing NEPA (Title 40 Code of Federal Regulations [CFR] Parts 1500–1508); Department of Defense (DOD) Directive 6050.1, *Environmental Considerations in DOD Actions*; and U.S. Air Force (USAF) implementing regulation for NEPA, the *Environmental Impact Analysis Process* (EIAP), Title 32 CFR 989, as amended.

### 1.1 Background

The existing creosote-treated wooden airfield approach lighting structures and supports at the north end of Runway 01/19 were built in 1970. The lifespan of creosote-treated timber support piles ranges anywhere from 40 to 75 years. Therefore, it is reasonable to assume these structures have reached their desired structural performance life. In addition, visual inspections indicate that the existing support piles are severely deteriorated and do not provide a safe platform for maintenance. The support piles do not comply with Unified Facilities Criteria (UFC) requirements to be of frangible- (i.e., support that breaks, distorts, or yields on impact and is used where light heights are 0 to 6 feet) or semi-frangible- (i.e., support that has two elements and is used where light heights are greater than 40 feet) type construction per UFC 3-535-01 Visual Air Navigation Facilities, and do not meet the standard overrun length of 3,000 feet and gradient requirements for airfield lighting structures per UFC 3-535-01 Visual Air Navigation Facilities. In accordance with UFC 3-535-01, an overall lighting system length of 3,000 feet extending from the runway threshold into the approach zone is required. However, if terrain or other local conditions prevent a full-length installation, the USAF may shorten the system to not less than 2,400 feet. Currently, Runway 01/19 is operating under a waiver (Waiver Number PWO5-0910-EGL) issued by Air Force Materiel Command (AFMC) allowing for the existing non-standard overrun length of 1,500 feet that matches the existing site conditions based on gradient (i.e., terrain), and because the land beyond 1,500 feet does not belong to the USAF.

In addition, the existing approach light structures are in an environmentally sensitive wetland area, Tom's Creek. The area provides habitat for the federally listed Okaloosa darter. The existing timber structures (piles and cross-members, along with a timber walkway adjacent to the structures along their base) are pressure-treated with creosote, which is likely leaching into the water and could present an environmental concern for the federally listed species. The U.S. Environmental Protection Agency (USEPA) has examined the potential effects of creosote for more than 25 years and allows creosote to be used as a preservative for wood used in aquatic environments, with the latest reregistration eligibility decision signed in 2008 (USEPA 2008). According to the reregistration eligibility decision, creosote polycyclic aromatic hydrocarbons (PAHs) (types of potent atmospheric pollutants) exceed the level of concern for acute risk to listed fish exposed in the water column or aquatic sediment. Under Section 7 of the Endangered Species Act (ESA), the USAF must ensure that this action does not result in destruction or adverse modification to designated critical habitat for the species. The considerations must take into account both short-term and long-term effects of the Proposed Action.

The USAF is required to prepare a Finding of No Practicable Alternative (FONPA) in accordance with Executive Order (EO) 11988, *Floodplain Management*; EO 11990, *Wetlands Protection*; and 32 CFR 989 AFI 32-7061, *EIAP*. FONPAs are prepared in conjunction with EAs or Environmental Impact Statements

and are attached to a Finding of No Significant Impact (FONSI) or Record of Decision (ROD). A FONPA is required for all projects proposed in wetlands and the 100-year floodplain on Eglin AFB.

## 1.2 Project Location and History

Eglin AFB is located in the panhandle of Florida and comprises portions of Santa Rosa, Okaloosa, and Walton counties (see **Figure 1-1**). These Gulf Coast counties are home to some of the most popular tourist areas in the United States. Real estate development is a prime industry in this part of Florida.

Eglin AFB contains 724 square miles of reservation (mostly rangeland) and is responsible for 126,064 square statute miles of over-water ranges in the Gulf of Mexico. Its airspace, range, and test areas are superior among installations worldwide, both for their capabilities and for their sensitivity to environmental diversity. The main installation is at the south-central edge of Eglin AFB and occupies 10,500 acres, or about 16 square miles. Duke Field is about 16 miles north of the main installation and covers 1,973 acres not far from the northern reservation boundary (AAC undated).

Eglin AFB is a national asset, operated and maintained by the 96th Test Wing (96 TW) within the AFMC. The installation serves several DOD components responsible for developing, testing, and operating weapons systems. According to the installation's public Web site, there are approximately 8,500 military personnel and 11,000 civilians working on the installation (AAC undated).

## 1.3 Purpose of and Need for the Proposed Action

The primary purpose of the Proposed Action is to maintain the approach lighting at the north end of Runway 01/19. Based on the age and condition of the existing runway approach lighting structures, repairing the approach lighting system at the north end of Runway 01/19 is required to provide a safe platform for maintenance and bring the system into compliance, to the maximum extent feasible, with all federal, state, and local regulations/codes, and environmental and aviation requirements. The system currently meets many of the requirements (listed as follows) with the exception, for example, of UFC 3-535-01, and, as the system ages, the USEPA's mandatory considerations for Occupational Safety and Health Administration (OSHA) and Life Safety. These requirements will be incorporated into the design, to the maximum extent feasible.

- USAF technical standards and requirements
- Underwriters Laboratories (UL)
- UFC 3-260-01 Airfield and Heliport Planning and Design, Federal Aviation Administration (FAA)
- American Society of Civil Engineers (ASCE)
- National Fire Protection Administration (NFPA) 13, 72, and 33
- Minimum Design Loads for Buildings and other Structures (ASCE 7-95)
- UFC 3-535-01 Visual Air Navigation Facilities
- National Electric Safety Code (NESC)
- USEPA with mandatory considerations for OSHA and Life Safety
- UFC 3-600-01 Fire Protection Engineering for Facilities
- American National Standard Institute (ANSI)
- National Electric Code (NEC)
- Bird/Wildlife Aircraft Strike Hazard (BASH) (AFPAM 91-212; *BASH Management Techniques*)

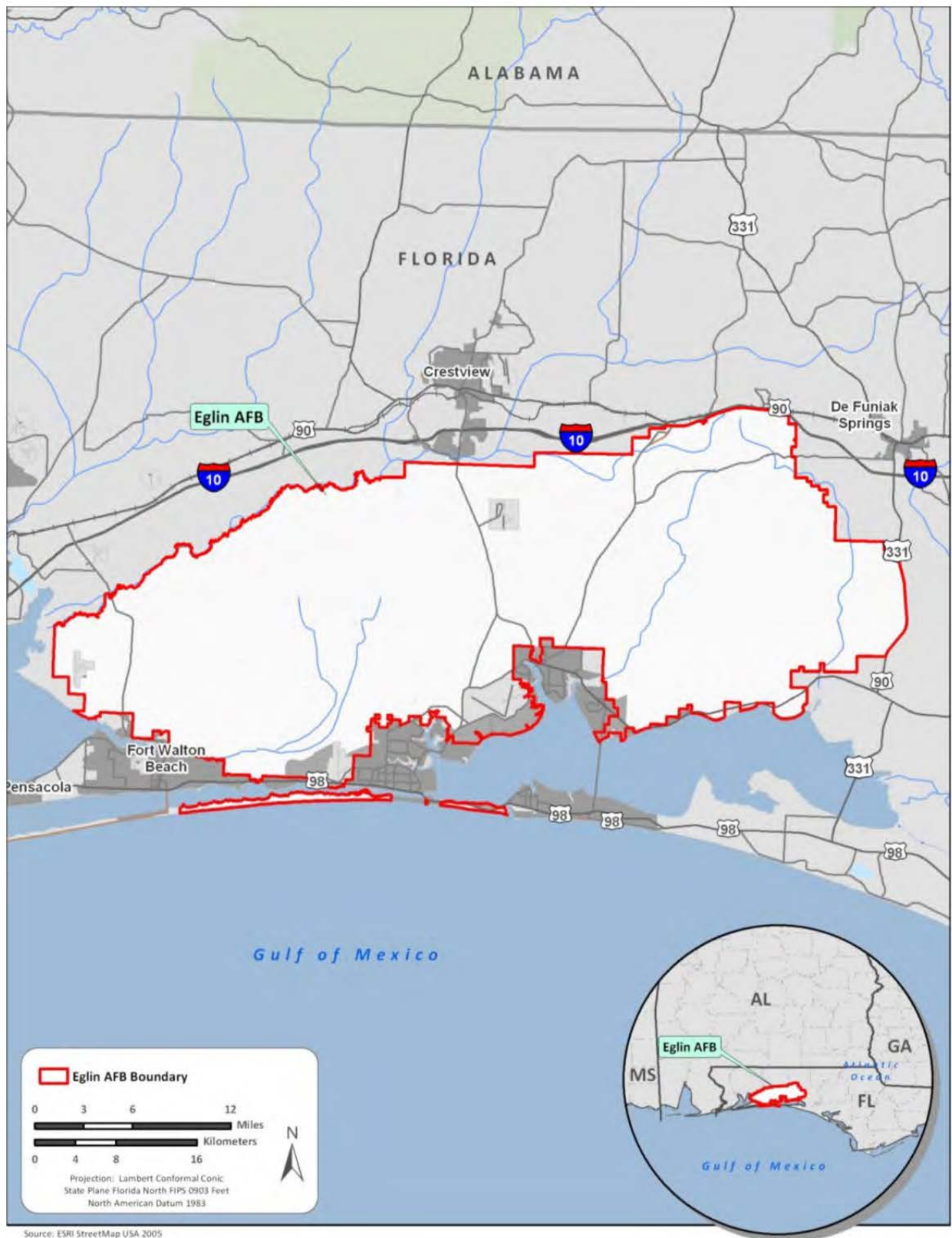


Figure 1-1. Eglin AFB Location Map

## 1.4 Summary of Key Environmental Compliance Requirements

### 1.4.1 National Environmental Policy Act

NEPA is a federal statute requiring the identification and analysis of potential environmental impacts associated with proposed federal actions before those actions are taken. The intent of NEPA is to help decisionmakers make well-informed decisions based on an understanding of the potential environmental consequences and take actions to protect, restore, or enhance the environment. NEPA established the CEQ that was charged with the development of implementing regulations and ensuring federal agency compliance with NEPA.

The CEQ regulations mandate that all federal agencies use a prescribed, structured approach to environmental impact analysis. This approach also requires federal agencies to use an interdisciplinary and systematic approach in their decisionmaking process. This process evaluates potential environmental consequences associated with a proposed action and considers alternative courses of action.

The process for implementing NEPA is outlined in 40 CFR, Parts 1500–1508, *Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act*. The CEQ was established under NEPA to implement and oversee federal policy in this process. The CEQ regulations specify that an EA be prepared to provide evidence and analysis for determining whether to prepare a FONSI or FONSI/ FONPA, where a FONPA is appropriate or whether the preparation of an EIS is necessary. The EA can aid in an agency's compliance with NEPA when an EIS is unnecessary and facilitate preparation of an EIS when one is required.

Upon completion of the EA process, the USAF will determine whether the Proposed Action would result in significant impacts. If such impacts are predicted, then the USAF would need to decide whether to provide mitigations to reduce impacts below the level of significance, undertake the preparation of an EIS, or abandon the Proposed Action. The EA will also be used to guide the USAF in implementing the Proposed Action in a manner consistent with the USAF standards for environmental stewardship should the Proposed Action be approved for implementation.

### 1.4.2 Integration of Other Environmental Statutes and Regulations

To comply with NEPA, the planning and decisionmaking process for federal actions involves a study of relevant environmental statutes and regulations. The NEPA process, however, does not replace procedural or substantive requirements of other environmental statutes and regulations. It addresses them collectively in the form of an EA or EIS, which enables the decisionmaker to have a comprehensive view of major environmental issues and requirements associated with a proposed action. According to CEQ regulations, the requirements of NEPA must be integrated “with other planning and environmental review procedures required by law or by agency so that all such procedures run concurrently rather than consecutively.” The USAF, in its mission to achieve and maintain environmental quality, is committed to conserving natural and cultural resources through effective planning and integrating, into all levels of decisionmaking, the environmental consequences of proposed actions and alternatives.

Air Force Policy Directive (AFPD) 32-70, *Environmental Quality*, states that the USAF will comply with applicable federal, state, and local environmental laws and regulations, including NEPA. Through the analysis conducted as part of the EA, the Proposed Action and alternatives have been assessed to ensure compliance with all applicable laws and regulations, such as the Clean Air Act (CAA); the Clean Water Act (CWA); the ESA; the National Historic Preservation Act (NHPA); the Archaeological Resources Protection Act; and the Solid Waste Disposal Act.

The USAF's implementing regulation for NEPA is EIAP, 32 CFR Part 989, as amended. EIAP (32 CFR 989), also incorporated by reference in AFI 32-7061, outlines the steps for the analysis of environmental impacts on installations in the United States and abroad. The policies and procedures set forth in the instruction and regulation are designed to ensure USAF compliance with NEPA and the CEQ regulations. EO 11514, *Protection and Enhancement of Environmental Quality*, as amended by EO 11991, sets the policy for directing the federal government in providing leadership in protecting and enhancing the quality of the nation's environment. EO 12372, *Intergovernmental Review of Federal Programs*, provides for opportunities for consultation by state and local governments on proposed federal developments. EO 11990, *Protection of Wetlands*, requires that federal agencies provide leadership and take actions to minimize or avoid the destruction, loss, or degradation of wetlands and to preserve and enhance the natural and beneficial values of wetlands. EO 11988, *Floodplain Management*, requires federal agencies to determine whether a proposed action would occur within a floodplain.

**Table 1-1** provides a summary of potentially applicable statutes and regulations. A representative listing and a more detailed description of laws, regulations, and EOs associated with various resource areas that might apply to the Proposed Action is included in **Appendix A**.

**Table 1-1. Summary of Applicable Statutes and Regulations**

Regulation	Part Number
<b>Air Quality</b>	
Clean Air Act	42 U.S.C. 7401 et seq., as amended
Federal Compliance with Pollution Control Standards	EO 12088
Federal Leadership in Environmental, Energy, and Economic Performance	EO 13514
Environmental Quality	AFI 32-70
Air Quality Compliance	AFI 32-7040
Florida Air and Pollution Control Act	Florida Statute (F.S.) 403.011 et seq.
<b>Noise</b>	
Noise Control Act of 1972	42 U.S.C. 4901 et seq., Public Law (P.L.) 92-574
Air Installation Compatible Use Zone Program	AFI 32-7063
Occupational Noise Exposure	29 CFR 1910.95
<b>Water Quality, Wetlands, Floodplains, and Coastal Zones</b>	
Clean Water Act	33 U.S.C. 1251 et seq., as amended
Coastal Zone Management Act	42 U.S.C. 1451 et seq. and F.S. 380.20 et seq.
Protection of Wetlands	EO 11990
Floodplain Management	EO 11988
Water Quality Compliance	AFI 32-7041
Florida Environmental Land and Water Management Act	F.S. 380.012 et seq.
Florida Air and Water Pollution Control Act	F.S. 403.011 et seq.
State Surface Water Regulations	Chapter 62-346 Florida Administrative Code (F.A.C.)
<b>Biological Resources</b>	
Endangered Species Act of 1973	16 U.S.C. 1531–1543
Migratory Bird Treaty Act of 1918	16 U.S.C. 703–712
Integrated Natural Resource Management	AFI 32-7064



Regulation	Part Number
Florida Fish and Wildlife Conservation Commission (FWC)	F.S. 372
<b>Land Use and Aesthetic Resources</b>	
NEPA	42 U.S.C. 4321 et seq.
<b>Cultural Resources</b>	
National Historic Preservation Act of 1966	16 U.S.C. 470 et seq., as amended
Archaeological Resources Protection Act	16 U.S.C. 470a-11, as amended
American Indian Religious Freedom Act of 1978	P.L. 95-341 and 42 U.S.C. 1996, as amended
The Native American Graves Protection and Repatriation Act of 1990	P.L. 101-601 and 25 U.S.C. 3001–3013
Cultural Resources Management	AFI 32-7065
Florida SHPO	F.S. 267
<b>Hazardous Materials and Waste Management</b>	
Defense Environmental Restoration Program	10 U.S.C. 2701 et seq.
Resource Conservation and Recovery Act of 1976	42 U.S.C. 6901, as amended
Solid and Hazardous Waste Compliance	AFI 32-7042
Environmental Restoration Program	AFI 32-7020
Florida Solid and Hazardous Waste Management Act	F.S. 403.702 et seq.
<b>Environmental Justice</b>	
Federal Actions to Address Environmental Justice in Minority Populations and Low-income Populations	EO 12989
<b>Transportation</b>	
Hazardous Material Transportation Act of 1975	49 U.S.C. 1761
<b>Runway Lighting and Facilities Standards</b>	
Visual Air Navigation Facilities	UFC 3-535-01
Airfield and Heliport Planning and Design	UFC 3-260-01
Fire Protection Engineering for Facilities	UFC 3-600-01

## 1.5 Scoping and Consultation

The Federal Agency Coastal Zone Management Act (CZMA) Consistency Determination, provided in **Appendix C**, was sent to the Florida State Clearinghouse and forwarded to the agencies with pertinent environmental resource responsibilities to request comments on possible issues of concern related to the Proposed Action. Comments are presented in **Appendix B** and discussed, as appropriate, in the relevant sections of **Section 3**, Affected Environment and Environmental Consequences.

### 1.5.1 Resource Areas Eliminated from Further Analysis

The project area is located on USAF property, which consists primarily of developed land/airfield and urban areas. No changes or incompatibilities in land use would occur from construction and demolition. Therefore, further analysis relating to land use was not warranted.

In 1995, the area was surveyed for cultural resources. Findings showed no archaeological or historical properties present within the bounds and SHPO concurred with these findings on December 6, 1995. In

addition, the closest low-income, minority, and children populations are approximately 2 miles away from the project site (ESRI 2010). No low-income or minority populations would be anticipated to bear a disproportionate share of adverse socioeconomic or environmental impacts by the construction and demolition activities since impacts would not be expected beyond the bounds. Because these resource areas do not exist within the project site, cultural resources, environmental justice, and safety and health risks to children were eliminated from further analysis.

## 1.5.2 Resource Areas Identified for Further Analysis

This EA examines potential impacts of the Proposed Action and alternatives on the following resource areas. These resources could be affected by the Proposed Action and include applicable elements of the human environment that are prompted for review by EO, regulation, or policy.

### Air Quality

- **Emissions including greenhouse gases (GHGs).** Runway lighting improvements have the potential to produce emissions and EO 13514, *Federal Leadership in Environmental, Energy, and Economic Performance* requires federal agencies to limit these impacts. Therefore, air quality is carried forward for further detailed analysis in this EA.

### Human Health and Safety

- **Noise.** Construction and maintenance personnel would be working directly under the flight path of aircraft approaching Runway 01/19 from the north. Therefore, noise impacts, as they relate to human health and safety, are carried forward for further detailed analysis in this EA.
- **Electrical Lines.** Construction and maintenance personnel would be working in close proximity to electrical distribution lines. Specifically, a 12-kilovolt (kV) line runs along the north (contractor) security gate road and would require special considerations for human health and safety. Therefore, impacts from electrical distribution lines, as they relate to human health and safety, are carried forward for further detailed analysis in this EA.
- **Biological Hazards.** Construction and maintenance personnel would be working directly in an area where venomous wildlife, insects, and plants could occur. These considerations include venomous snakes, alligators, spiders, scorpions, and stinging insects. Therefore, impacts from biological hazards, as they relate to human health and safety, are carried forward for further detailed analysis in this EA.

### Hazardous Materials and Waste

- **Creosote Contamination.** Construction and maintenance personnel would be working directly in an area where creosote-treated timber piles are located. Involvement with creosote (and its by-products) during runway lighting improvement activities associated with the Proposed Action would be likely. Therefore, impacts from hazardous materials are carried forward for further detailed analysis in this EA.

### Soils

- **Hazardous Materials.** Based on the existing creosote-treated timber piles and the duration of their use in the environment, impacts on soils from hazardous materials are carried forward for further detailed analysis in this EA.

## Water Resources

- **Surface Water Quality.** Based on the existing creosote-treated timber piles and the duration of their use in the environment, impacts on surface water quality from hazardous materials and impacts from sedimentation and erosion during construction activities are carried forward for further detailed analysis in this EA.
- **Floodplains.** Construction activities associated with the Proposed Action would impact a floodplain area associated with Tom's Creek. Therefore, impacts on floodplains are carried forward for further detailed analysis in this EA.
- **Wetlands.** Construction activities associated with the Proposed Action would impact a wetland area associated with Tom's Creek. Therefore, impacts on wetlands are carried forward for further detailed analysis in this EA.

## Biological Resources

- Construction activities associated with the Proposed Action would have the potential to impact biological resources. Specifically, the Okaloosa darter, which is listed as threatened under the ESA, and its habitat would be impacted. Therefore, impacts on biological resources are carried forward for further detailed analysis in this EA.

## Infrastructure

- **Transportation and Utilities.** The north (contractor) security gate road crosses under and between two approach lighting structures associated with the Proposed Action. Therefore, operators of vehicles using this road would be impacted during construction activities. In addition, utilities exist along this road; coordination with the appropriate utility agencies/authorities and installation personnel would be required. Therefore, impacts on transportation and utilities are carried forward for further detailed analysis in this EA.

### 1.5.3 Bounds Analysis

For the purposes of the EA, a bounds analysis will be used to determine the affected environment for specific resource areas. The following bounded areas are used in **Section 3** of this EA to depict the region of influence (ROI) for potential impacts.

**Air Quality.** Based on the geographic location of Eglin AFB and in particular the Proposed Action, the ROI to be analyzed in this EA for air quality will encompass Okaloosa County.

**Human Health and Safety.** Construction and maintenance personnel would be impacted by aircraft noise, electrical and biological hazards, and hazardous materials during construction activities and general maintenance of the lighting structures. Therefore, the ROI for human health and safety is located within the limits of construction for the approach on the north end of Runway 01/19 where construction and maintenance personnel would be working under the Proposed Action.

**Water Resources.** Based on the drainage flow (runoff) from the site, the ROI to be analyzed in this EA for water quality will extend from 100 feet upstream to 100 feet downstream of the Proposed Action.

**Soils.** Based on the existing creosote-treated timber piles and the duration of their use, the greatest potential for impacts on soils would be in the immediate vicinity of the piles' current placement. Therefore, the ROI will be directly adjacent to the existing timber piles.

**Wetlands.** The ROI for wetlands will be a 500-foot radius around the project site due to construction personnel and equipment ingress and egress to the site.

**Biological Resources.** The ROI for biological resources will be a 1,000-foot radius around the project site. This would cover enough area necessary to address adequately any concerns from impacts on wildlife and habitat and impacts on ESA-listed species from construction activities associated with repairing the lighting structures.

**Infrastructure.** Based on the existing utilities and transportation in the area, the ROI to be analyzed in this EA will extend from the north gate entrance to the perimeter runway road. Maintenance of traffic along this road would be required during utility relocations.

## 1.6 Interagency and Intergovernmental Coordination for Environmental Planning and Public Involvement

NEPA requirements help ensure that environmental information is made available to the pertinent agencies and the public during the decisionmaking process and prior to actions being taken. The Interagency and Intergovernmental Coordination for Environmental Planning (IICEP) process provides Eglin AFB with the opportunity to cooperate with and consider other agencies' views associated with implementing the Proposed Action or alternatives. Through the IICEP process, Eglin Natural Resource Section (NRS) notified the U.S. Fish and Wildlife Service (USFWS) on April 29, 2013, that the Proposed Action would have "No Effect" on the Okaloosa darter. As a result, the USFWS acknowledged the determination on May 1, 2013 (FWS Log No. 04EF 3000-2013-I-0167) (**Appendix B**). Eglin AFB also notified the relevant agencies (through the Florida State Clearinghouse on February 26, 2013) about the Proposed Action and alternatives. On March 5, and April 19, 2013, the Florida State Clearinghouse issued their concurrence under State Application Identifier Number FL201303056517C, that the Proposed Action is consistent with the Florida Coastal Management Program (**Appendix B**). In addition, the public involvement process was initiated by placing a notice in the *Northwest Florida Daily News* announcing the availability of the Draft EA and Draft FONSI/FONPA for a 45-day public review and comment period. A copy of the publication as it ran in the newspaper on March 2, 2013, is shown in **Appendix B**.

## 1.7 Permit Requirements

A Section 404 Permit under the CWA from the U.S. Army Corps of Engineers (USACE) and an Environmental Resource Permit from the Florida Department of Environmental Protection (FDEP) would be required prior to dredging or filling federal or state jurisdictional wetlands. A joint permit application would be completed and submitted to these regulatory agencies. The submerged lands that would support the lighting structures and walkway are state of Florida Sovereign Submerged Lands (SSL). The Division of State Lands (DSL) administers SSL, and coordination would be completed as part of the Environmental Resource Permit application review and approval process. If activities disturb 1 acre or more of ground surface, a National Pollutant Discharge Elimination System (NPDES) storm water construction permit is required according to 62-621, Florida Administrative Code (F.A.C.).

## 1.8 Organization of this Document

This EA is organized into seven sections, plus appendices. **Section 1** provides the background information, the project location, and the purpose of and need for the Proposed Action. **Section 2** contains a Description of the Proposed Action and Alternatives, including the No Action Alternative and a discussion of other alternatives considered. **Section 3** contains a description of the environmental resources and baseline conditions that could be affected by the Proposed Action and alternatives, and presents an analysis of the potential environmental consequences of implementing the Proposed Action and the No Action Alternatives. A summary of mitigations and management actions, which could include best management practices (BMPs) to minimize impacts from runway lighting improvements, is contained in **Section 4**. **Section 5** includes an analysis of the potential cumulative impacts at Eglin AFB. **Section 6** lists the preparers of this EA. **Section 7** lists the references used in the preparation of this EA.

**Appendix A** contains examples of applicable laws, regulations, policies, and planning criteria potentially relevant to this NEPA document. **Appendix B** contains the IICEP coordination with the Florida State Clearinghouse and their concurrence, the public involvement process, and the “No Effect” determination letter and USFWS acknowledgment. **Appendix C** contains the Federal Agency CZMA Consistency Determination. **Appendix D** contains definitions for the resource areas analyzed in this EA. **Appendix E** contains supplemental information regarding biological resources.

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## 2. DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

This section provides detailed information on the Proposed Action and alternatives considered, including the No Action Alternative. As discussed in **Section 1.4.1**, the NEPA process evaluates potential environmental consequences associated with a proposed action and considers alternative courses of action. Reasonable alternatives must satisfy the purpose of and need for a proposed action, as defined in **Section 1.3**. In addition, CEQ regulations also specify the inclusion of a No Action Alternative against which potential effects can be compared. While the No Action Alternative would not satisfy the purpose of or need for the Proposed Action, it is analyzed in detail in accordance with CEQ regulations.

### 2.1 Proposed Action

Under the Proposed Action, Eglin AFB would repair the approach runway lighting system at the north end of Runway 01/19. Repairing the approach lighting system at the north end of Runway 01/19 is required to provide a safe platform for maintenance and to bring the system into compliance, to the maximum extent feasible, with all federal, state, and local regulations and codes; and environmental and aviation requirements as identified in **Section 1.3**. In accordance with UFC 3-535-01, an overall lighting system length of 3,000 feet extending from the runway threshold into the approach zone is required. However, if terrain or other local conditions prevent a full-length installation, the system may be shortened to not less than 2,400 feet. Currently, Runway 01/19 is operating under a waiver (Waiver Number PWO5-0910-EGL) for a 1,500-foot system that matches the existing site conditions based on gradient (i.e., terrain), and because the land beyond 1,500 feet does not belong to the USAF. In addition, to comply with UFC 3-535-01, Section 3-1.4.3, *Obstruction Clearances*, selective vegetative clearing will be required in the approach zone within a 200-foot-wide area as measured from each side of the runway centerline and 200-feet from the runway threshold and before the start of the approach zone.

### 2.2 Alternatives

Under NEPA, reasonable alternatives to a proposed action must be considered in an EA. Considering alternatives helps to avoid unnecessary impacts and allows an analysis of reasonable ways to achieve the stated purpose. To warrant detailed evaluation, an alternative must be considered reasonable. To be considered reasonable, an alternative must be capable of implementation and satisfactory with respect to meeting the purpose of and the need for an action. For the purposes of this EA, the materials used in construction and the actual constructability of the lighting system design, as they relate to environmental impacts, are the main aspects evaluated as an alternative. This section establishes the core selection criteria used in determining the advancement of alternatives; describes the alternatives, including the No Action Alternative; and provides the alternatives considered but eliminated and alternatives carried forward for further detailed analysis.

Seven action alternatives and the No Action Alternative were considered during the preliminary alternatives evaluation process. **Sections 2.2.1 and 2.2.2** provide details on the selection criteria and the activities proposed under each of the alternatives, respectively.

#### 2.2.1 Selection Criteria for Alternatives

Criteria considered in the evaluation of potential alternatives include potential effects on the natural and human environment such as air, human health and safety (e.g., noise, electrical and biological hazards, and hazardous materials), soils, water resources, wetlands, biological resources, and infrastructure (e.g., utilities and transportation). All the alternatives have a potential to impact these environmental

resources; some to a greater extent than others. Therefore, in addition to environmental consideration, more specific core criteria have been established that will ensure the project conforms with all federal, state, and local regulations and codes; and environmental and aviation requirements. In order for an alternative to be carried forward for further study, it must receive at least two “yes” answers as summarized in **Table 2-1**. The core criteria have been identified as follows:

- All structures are required to be frangible-, (i.e., support that breaks, distorts, or yields on impact and is used where light heights are 0 to 6 feet) or semi-frangible- (i.e., support that has two elements and is used where light heights are greater than 40 feet) type construction per UFC 3-535-01.
- The structure must also provide safe access during maintenance. This would entail being able to lower the structure safely to change bulbs. However, for this analysis a platform mounted on top of existing creosote piles would constitute a low degree of safety.
- The life expectancy of creosote-treated timber support piles ranges anywhere from 40 to 75 years. This structure was built in 1970 and is now within the range where structural integrity becomes a determining factor not only in its safety (as described above) but also in its economic longevity. The question becomes, “Is it worth the money to continue to maintain an aging facility that is reaching the end of its usable life?” Therefore, the reuse of these support piles would create a situation that would not be an economically feasible solution as it relates to long-term maintenance costs of the lighting structure and future Runway 01/19 operations.

**Table 2-1** summarizes the core selection criteria used to evaluate the alternatives.

**Table 2-1. Summary of Core Selection Criteria**

<b>Alternatives</b>	<b>Frangible or Semi-frangible Lighting Structure</b>	<b>Safe Access for Maintenance</b>	<b>Economically Feasible</b>
1	Yes	No	No
2	Yes	No	No
3	Yes	No	No
4	Yes	No	No
5	Yes	Yes	Yes
6	Yes	No	No
7	Yes	Yes	Yes
No Action	No	No	No

## 2.2.2 Description of Alternatives

### Alternative 1

Alternative 1 would include the following actions:

- A temporary structure would be constructed across the stream to allow for access during runway lighting improvements. Mats or other ground-level access would be used in wetland areas.
- Timber piles would be left in place and all cross members would be removed and replaced.
- Existing airfield lighting would be removed and poles would be cut to approximately 10 to 12 feet below the centerline of lights.
- A platform would be installed at the top of the wood structure. The improved structure would include an OSHA-approved railing and ladder with a safety climb device.
- A frangible or semi-frangible lighting structure would be mounted to the platform. The structure would be mounted so it could be lowered for electricians to safely change the bulbs.
- Wood members on the walkway would be inspected and replaced, as required.
- BASH reduction initiatives would be incorporated into the design.
- Selective vegetative clearing would occur in compliance with UFC 3-535-01, Section 3-1.4.3, *Obstruction Clearances*.

### Alternative 2

Alternative 2 would include actions identified under Alternative 1. In addition, stainless-steel sleeves would be added to the poles to cover areas below the waterline to prevent potential leaching of the creosote from the poles into the wetland area.

### Alternative 3

Alternative 3 would include the following actions:

- A temporary structure would be constructed across the stream to allow for access during runway lighting improvements. Mats or other ground-level access would be used in wetland areas.
- Piles would be abandoned in place and cut 5 feet above the waterline.
- A platform would be installed at the top of the wood structure with an OSHA-approved railing.
- A frangible or semi-frangible lighting structure would be installed and mounted to the platform. The structure would be mounted so it could be lowered for electricians to safely change the bulbs.
- Wood members on the walkway would be inspected and replaced, as required.
- BASH reduction initiatives would be incorporated into the design.
- Selective vegetative clearing would occur in compliance with UFC 3-535-01, Section 3-1.4.3, *Obstruction Clearances*.

## Alternative 4

Alternative 4 would include actions identified under Alternative 3. In addition, stainless-steel sleeves would be added to the poles to cover areas below the waterline to prevent potential leaching of the creosote from the poles into the wetland area.

## Alternative 5

Alternative 5 would include the following actions:

- A temporary structure would be constructed across the stream to allow for access during runway lighting improvements. Mats or other ground-level access would be used in wetland areas.
- The entire system would be demolished. All piles located in the stream, including the walkway, would be removed. All piles located in the wetlands or floodplains would be cut at the mudline.
- New concrete or steel piles would be installed and a rigid platform with an OSHA-approved railing would be constructed above the waterline. An OSHA-approved ladder would be installed to access the platform.
- A frangible or semi-frangible lighting structure would be mounted to the platform. This structure would be mounted so it can be lowered for electricians to safely change the bulbs.
- The walkway would be replaced with steel or concrete piles and non-combustible construction.
- BASH reduction initiatives would be incorporated into the design.
- Selective vegetative clearing would occur in compliance with UFC 3-535-01, Section 3-1.4.3, *Obstruction Clearances*.

## Alternative 6

Alternative 6 would include the following actions:

- A temporary structure would be constructed across the stream to allow for access during runway lighting improvements. Mats or other ground-level access would be used in wetland areas.
- The entire system would be demolished and removed. Demolition and removal would include the piles and the walkway.
- An open steel trellis bridge with two supportive towers would be installed.
- Frangible or semi-frangible lighting structures would be mounted to the bridge deck. This structure would be mounted so it can be lowered for electricians to safely change the bulbs.
- A walkway would be constructed at bridge level.
- BASH reduction initiatives would be incorporated into the design.
- Selective vegetative clearing would occur in compliance with UFC 3-535-01, Section 3-1.4.3, *Obstruction Clearances*.

## Alternative 7

Alternative 7 would include the following actions:

- A temporary structure would be constructed across the stream to allow for access during runway lighting improvements. Mats or other ground-level access would be used in wetland areas.
- Piles would be abandoned in place and cut 5 feet above the waterline.
- Stainless-steel sleeves would be added to the poles to cover areas below the waterline to prevent potential leaching of the creosote from the poles into the wetland area.
- New concrete or steel piles would be installed and a rigid platform would be constructed above the waterline.
- A frangible or semi-frangible lighting structure would be mounted to the platform. This structure would be mounted so it can be lowered for electricians to safely change the bulbs.
- Wood members of the walkway would be inspected and replaced, as required.
- BASH reduction initiatives would be incorporated into the design.
- Selective vegetative clearing would occur in compliance with UFC 3-535-01, Section 3-1.4.3, *Obstruction Clearances*.

## No Action Alternative

As required by NEPA and USAF's EIAP (32 CFR § 989.8), the No Action Alternative was carried forward for analysis in the EA to allow a detailed comparison of baseline conditions and the Proposed Action. Under the No Action Alternative, Eglin AFB would not repair the approach runway lighting system at the north end of Runway 01/19 and would not comply with all federal, state, and local regulations and codes; and environmental and aviation requirements to the maximum extent feasible. The existing conditions would be unchanged. Maintenance personnel would continue to climb the existing creosote-treated structure to change light bulbs creating potentially unsafe work conditions.



To summarize the actions considered within each alternative, **Table 2-2** provides an overview of the actions proposed under each alternative.

**Table 2-2. Summary of Alternatives**

Description of Alternatives	Alternatives							
	1	2	3	4	5	6	7	No Action
Construct a temporary access structure across stream for construction activities and use mats within wetland areas.	✓	✓	✓	✓	✓	✓	✓	✗
Leave existing piles in place and replace cross members.	✓	✓	✗	✗	✗	✗	✓	✓
Leave piles and cut them 5 feet above waterline.	✗	✗	✓	✓	✗	✗	✓	✗
Install platform with OSHA-approved railing and ladder with a safety climb device.	✓	✓	✓	✓	✓	✗	✗	✗
Install frangible or semi-frangible lighting structure mounted to platform for safely changing bulbs.	✓	✓	✓	✓	✓	✓	✓	✗
Remove existing airfield lighting and cut poles approximately 10 to 12 feet below centerline of lights.	✓	✓	✗	✗	✗	✗	✗	✗
Add stainless-steel sleeves to poles to cover areas below waterline.	✗	✓	✗	✓	✗	✗	✓	✗
Inspect wood members along walkway and replace, as required.	✓	✓	✓	✓	✗	✗	✓	✗
Demolish and remove entire system of piles and walkway.	✗	✗	✗	✗	✗	✓	✗	✗
Demolish the entire system. All piles located in the stream, including the walkway, would be removed. All piles located in the wetlands or floodplains would be cut at the mudline.	✗	✗	✗	✗	✓	✗	✗	✗
Install new concrete or steel piles with a rigid platform above waterline.	✗	✗	✗	✗	✓	✗	✓	✗
Replace walkway with steel or concrete piles and non-combustible construction.	✗	✗	✗	✗	✓	✓	✗	✗
Install open steel trellis bridge with two supportive towers.	✗	✗	✗	✗	✗	✓	✗	✗
Incorporate BASH reduction initiatives into the design.	✓	✓	✓	✓	✓	✓	✓	✗
Conduct selective vegetative clearing.	✓	✓	✓	✓	✓	✓	✓	✓

Key: ✓ = yes; ✗ = no

## 2.2.3 Alternatives Eliminated from Further Detailed Analysis

### Alternatives 1, 2, 3, and 6

Alternatives 1, 2, 3, and 6 do not satisfy the core selection criteria and were therefore, eliminated from further detailed analysis. Alternatives 1, 2, 3, and 4 are similar in that the life expectancy of the existing piles are low and therefore, implementation of these alternatives would not be cost-feasible for long-term maintenance. However, in order to validate the analysis of the alternatives, Alternative 4 was carried forward so that the environmental impacts of at least one alternative involving the installation of stainless-steel sleeves around existing piles, without the addition of new piles, was evaluated. Alternative 6 was eliminated because it is not cost-feasible based on the construction associated with two towers large enough to support an open-steel trellis bridge for the lighting structures.

## 2.2.4 Alternatives Carried Forward for Further Detailed Analysis

### Alternatives 4, 5, and 7

Alternatives 5 and 7 fully satisfy the core selection criteria and meet the purpose of and need for the Proposed Action. Alternative 4, as mentioned above, was carried forward to analyze the potential impacts associated with installing stainless-steel sleeves around existing piles without installing new piles. Therefore, Alternatives 4, 5, and 7 were carried forward for further detailed analysis.

Alternative 5 has been identified as the Preferred Alternative based on both the level of safety provided for electricians conducting future maintenance and the environmental benefits of removing all creosote-treated timber from the stream and walkway and cutting the piles within the wetlands and floodplains at the mudline. Alternative 5 will be carried forward to satisfy the Proposed Action.

### No Action Alternative

CEQ regulations require consideration of the No Action Alternative. The No Action Alternative does not meet the purpose of and need for the Proposed Action as discussed in **Section 1.3**. However, it serves as a baseline against which the impacts of the Proposed Action can be evaluated. Under the No Action Alternative, Eglin AFB would not repair the approach lighting system at the north end of Runway 01/19 on Eglin Main and would not comply with all federal, state, and local regulations and codes; and environmental and aviation requirements to the maximum extent feasible. Other than conducting selective vegetative clearing, the existing conditions would remain unchanged and the lighting system would not only remain noncompliant with most regulations and requirements, but would also continue to degrade and have unsafe maintenance conditions.

## 2.2.5 Past Actions Relevant to the Current Resource Conditions

The existing airfield approach lighting structures at the north end of Runway 01/19 were constructed in 1970 using creosote-treated timber. The structures were constructed in the floodplains, wetlands, and stream channel associated with Tom's Creek prior to 1972, when many of the environmental laws were enacted. This creek provides habitat for the Okaloosa darter, which is listed under the ESA as threatened.

Based on terrain and topography, Runway 01/19 was built with a shortened overrun length and gradient. There have been no other past actions identified in the area and adjacent to Runway 01/19 that might have cumulative effects.

## 2.2.6 Present Actions Relevant to the Current Resource Conditions

Current lighting structures are inadequate as discussed in **Section 2.1**. Upgrading the structures could overlap with present actions. At this time, only the following is applicable to the alternatives: Eglin NRS is promoting the recovery and, ultimately, the delisting of the Okaloosa darter through the restoration of darter streams and reducing sedimentation in their habitat. These actions result in benefits to the threatened species and could improve the darter population.

## 2.2.7 Reasonably Foreseeable Actions Relevant to the Current Resource Conditions

The scoping process that was used to identify and address key issues resulted in a list of other reasonably foreseeable projects by government agencies that could occur in or near the north end of Runway 01/19. For a project to be reasonably foreseeable, it must have advanced far enough in the planning process that decisionmaking on its implementation is possible. The only major reasonably foreseeable federal, state, and local project within the area that has been identified as an additional action to be considered is the future runway work at Eglin AFB. All of this future work will be coordinated through Eglin's Airfield Manager in accordance with Eglin's Airfield Infrastructure Plan (Rogers and Bouchard 2012).

Cumulative environmental effects of the Proposed Action when considered with other past, present, and reasonably foreseeable future actions directly occurring within the geographical context of the project are discussed in **Section 5.1.2**.

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## 2.3 Comparison of Alternatives

**Table 2-3** summarizes the impacts for each resource area under the Proposed Action and the No Action Alternative.

**Table 2-3. Summary of Alternatives and Potential Environmental Effects**

Resource	Proposed Action	No Action Alternative
<b>Air Quality</b>	Short-term, minor, temporary increases in air emissions from heavy equipment during construction. No significant impacts would be anticipated.	No impacts anticipated.
<b>Human Health and Safety</b>	Short-term, minor, adverse impacts on health and safety conditions during construction. Potential impacts would be reduced with the implementation of BMPs and environmental protection measures. No significant impacts would be anticipated.	Adverse impacts potentially associated with creosote leaching. Would continue to be a highly unsafe area for its proposed use.
<b>Hazardous Materials</b>	Short-term, minor, adverse impacts from hazardous materials during construction. No long-term, adverse impacts would be expected. Hazardous materials and other potentially harmful materials, such as creosote associated with the existing lighting structure, would be properly handled, stored, and disposed of in accordance with federal and state laws and regulations.	Adverse impacts potentially associated with creosote leaching.
<b>Soils</b>	Short-term, minor, adverse effects on soils would be expected from activities related to the Proposed Action. No significant effects would be anticipated.	Adverse impacts potentially associated with creosote leaching into the soils.
<b>Water Resources/ Wetlands</b>	Short-term, minor, adverse effects on surface waters, wetlands, and floodplains during construction. Impacts would be reduced by implementing BMPs and environmental protection measures during and after construction until the area is stabilized. The installation of new steel or concrete piles would have a long-term, beneficial effect on surface waters, wetlands, and floodplains. The project will require a permit from the state of Florida and a Section 404 Permit from the USACE. No significant effects would be anticipated.	Adverse impacts potentially associated with creosote leaching into surface waters, wetlands, and floodplains.
<b>Biological Resources</b>	Section 7 consultation under the ESA would not be required. Short-term, direct, negligible to minor, adverse effects would be expected on wildlife, habitats, and protected species during construction. Impacts would be reduced with the implementation of BMPs and environmental protection measures. No significant impacts are expected. Long-term, beneficial effects on threatened and endangered species are expected. A “No Effect” determination letter and USFWS acknowledgment regarding Okaloosa darters can be found in <b>Appendix B</b> .	Adverse impacts associated with in-channel obstructions (piles).
<b>Utilities and Infrastructure</b>	Short-term, minor, adverse effects on the water supply, electrical supply, and sanitary sewer and wastewater system expected during construction. Potential impacts would be reduced with the implementation of BMPs and environmental protection measures.	No impacts anticipated.

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### 3. AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

#### 3.1 Air Quality

##### 3.1.1 Definition of the Resource

In accordance with CAA requirements, the air quality in a given region or area is measured by the concentration of various pollutants in the atmosphere in comparison to National Ambient Air Quality Standards (NAAQS). The measurements of these NAAQS-regulated or “criteria pollutants” in ambient air are expressed in units of parts per million (ppm), milligrams per cubic meter (mg/m<sup>3</sup>), or micrograms per cubic meter (µg/m<sup>3</sup>). The air quality in a region is a result of not only the types and quantities of atmospheric pollutants and pollutant sources in an area, but also surface topography, topological “air basin” size, and the prevailing meteorological conditions.

The construction phase of the Proposed Action is not expected to generate criteria pollutant concentrations above the NAAQS as listed in **Table 3-1**.

Indirect emissions from the electric generation required to operate the runway lighting of the Proposed Action can be expected to be the same as or lower than the emissions associated with the existing lighting. This conclusion is based on the assumption that under the Proposed Action, a more modern (and presumably, more efficient) lighting system would be installed.

##### 3.1.2 Description of the Affected Environment

Eglin AFB is within portions of Santa Rosa, Okaloosa, and Walton counties, Florida. These counties are part of the Mobile-Pensacola-Panama City-Southern Mississippi Interstate Air Quality Control Region (MPPCSMI AQCR). The MPPCSMI AQCR is in attainment with NAAQS for all criteria pollutants (USEPA 2012a). Therefore, the General Conformity Rule does not apply to the Proposed Action. The FDEP, Division of Air Resource Management is responsible for implementation of the CAA in the project area.

Eglin AFB is classified as a major source and was issued a Title V Operation Permit (0910031-013 AV) in May 2009. Various stationary combustion sources exist on the installation that have the potential to emit pollutants, including the installation’s boilers and generators, and an air curtain incinerator, which was issued a Title V Construction Permit (0910031-013 AC) in January 2011.

Installations that emit greater than 10 tons per year (tpy) of volatile organic compounds (VOCs); 25 tpy of nitrogen oxides (NO<sub>x</sub>); or 100 tpy of carbon monoxide (CO), particulate matter equal to or less than 10 microns in diameter (PM<sub>10</sub>), or sulfur oxides (SO<sub>x</sub>) are required to submit an annual emissions statement to the FDEP. As a facility that emits pollutants in excess of one or more of these limits, the FDEP requires Eglin AFB to submit an annual emissions statement that provides information regarding the pollutants emitted.

##### 3.1.3 Environmental Consequences

The environmental consequences to local and regional air quality conditions near a proposed federal action are determined based upon the increases in regulated pollutant emissions relative to ambient air quality. Specifically, the impact in NAAQS “attainment” areas would be considered potentially significant if the net increases in pollutant emissions from the federal action would result in any one of the following scenarios:

**Table 3-1. National and State Ambient Air Quality Standards**

Pollutant	Averaging Time	Primary Standard <sup>a</sup>	Secondary Standard
<b>CO</b>	8-hour <sup>b</sup>	9 ppm (10 mg/m <sup>3</sup> )	None
	1-hour <sup>b</sup>	35 ppm (40 mg/m <sup>3</sup> )	None
<b>Pb</b>	Quarterly Average	1.5 µg/m <sup>3</sup> <sup>c</sup>	Same as Primary
	Rolling 3-Month Average	0.15 µg/m <sup>3</sup> <sup>c</sup>	Same as Primary
<b>NO<sub>2</sub></b>	Annual Arithmetic Mean	53 ppb <sup>d</sup>	Same as Primary
	1-hour	100 ppb <sup>e</sup>	None
<b>PM<sub>10</sub></b>	24-hour <sup>f</sup>	150 µg/m <sup>3</sup>	Same as Primary
<b>PM<sub>2.5</sub></b>	Annual Arithmetic Mean <sup>g</sup>	15 µg/m <sup>3</sup>	Same as Primary
	24-hour <sup>h</sup>	35 µg/m <sup>3</sup>	Same as Primary
<b>O<sub>3</sub></b>	8-hour <sup>i</sup>	0.075 ppm (2008 Standard)	Same as Primary
	8-hour <sup>j</sup>	0.08 ppm (1997 Standard)	Same as Primary
	1-hour <sup>k</sup>	0.12 ppm	Same as Primary
<b>SO<sub>2</sub></b>	Annual Arithmetic Mean	0.03 ppm <sup>l</sup>	None
	24-hour <sup>b</sup>	0.14 ppm <sup>l</sup>	None
	3-hour <sup>b</sup>	None	0.5 ppm
	1-hour	75 ppb <sup>l</sup>	None

Source: USEPA 2012b

Notes:

- a. Parenthetical values are approximate equivalent concentrations. Effective February 16, 2012, Florida has repealed all state Ambient Air Quality Standards. Federal standards listed here apply throughout Florida (FDEP 2012).
- b. Not to be exceeded more than once per year.
- c. Final rule implementing the Rolling 3-Month Average (2008) standard was signed October, 15 2008. The Quarterly Average (1978) standard remains in effect until one year after an area is designated for the 2008 standard. The effective designation date for the 2008 standard in Florida was December 31, 2011. Therefore, the 1978 standard will no longer be in effect after December 31, 2012.
- d. The official level of the annual NO<sub>2</sub> standard is 0.053 ppm, equal to 53 ppb, which is shown here for the purpose of cleaner comparison to the 1-hour standard.
- e. To attain this standard, the 3-year average of the 98th percentile of the daily maximum 1-hour average at each monitor within an area must not exceed 100 ppb.
- f. Not to be exceeded more than once per year on average over 3 years.
- g. To attain this standard, the 3-year average of the weighted annual mean PM<sub>2.5</sub> concentrations from single or multiple community-oriented monitors must not exceed 15 µg/m<sup>3</sup>.
- h. To attain this standard, the 3-year average of the weighted annual of the 98th percentile of 24-hour concentrations at each population-oriented monitor within an area must not exceed 35 µg/m<sup>3</sup> (effective December 17, 2006).
- i. To attain this standard, the 3-year average of the fourth-highest daily maximum 8-hour average ozone concentrations measured at each monitor within an area over each year must not exceed 0.075 ppm (effective May 27, 2008).
- j. 1. To attain this standard, the 3-year average of the fourth-highest daily maximum 8-hour average ozone concentrations measured at each monitor within an area over each year must not exceed 0.08 ppm.  
2. The 1997 standard – and the implementation rules for that standard – will remain in place for implementation purposes as USEPA undertakes rulemaking to address the transition from the 1997 ozone standard to the 2008 ozone standard.  
3. USEPA is in the process of reconsidering these standards (set in March 2008).
- k. 1. USEPA revoked the 1-hour ozone standard in all areas, although some areas have continuing obligations under that standard (anti-backsliding).  
2. The standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above 0.12 ppm is ≤ 1.
- l. Final rule implementing the 1-hour standard was signed on June 2, 2010. To attain the 1-hour standard, the 3-year average of the 99th percentile of daily maximum 1-hour average at each monitor within an area must not exceed 75 ppb. The annual and 24-hour standards were revoked in that same rulemaking. However, these standards remain in effect until one year after attainment status for an area is designated for the 2010 standards. Designations for the 2010 standards are anticipated to be made by June 3, 2012.

Key: CO = carbon monoxide; NO<sub>2</sub> = nitrogen dioxide; O<sub>3</sub> = ozone; Pb = lead; SO<sub>2</sub> = sulfur dioxide; PM<sub>10</sub> = particulate matter equal to or less than 10 microns in diameter; PM<sub>2.5</sub> = particulate matter equal to or less than 2.5 microns in diameter; ppb = parts per billion; ppm = parts per million; mg/m<sup>3</sup> = milligrams per cubic meter; µg/m<sup>3</sup> = micrograms per cubic meter



- Cause or contribute to a violation of any national or state ambient air quality standard
- Expose sensitive receptors to substantially increased pollutant concentrations
- Exceed any evaluation criteria established by a State Implementation Plan (SIP) or permit limitation
- Produce emissions representing an increase of 100 tpy<sup>1</sup> for any attainment criteria pollutant (i.e., NO<sub>x</sub>, VOCs, CO, PM<sub>10</sub>, particulate matter equal to or less than 2.5 microns in diameter [PM<sub>2.5</sub>], sulfur dioxide [SO<sub>2</sub>]), unless the proposed activity qualifies for an exemption under the federal General Conformity Rule.

### 3.1.3.1 Alternatives 4, 5, and 7

Short-term, minor, adverse effects on air quality would be anticipated from activities related to the construction of Alternatives 4, 5, and 7. These activities would generate temporary air pollutant emissions associated with the demolition or modification of the existing lighting system. Emissions would be temporary and minor and would not be expected to generate any offsite effects. Regulated pollutant emissions from the Proposed Action would not contribute to or affect local or regional attainment status with the NAAQS. Because Eglin AFB is in attainment with NAAQS for all criteria pollutants, General Conformity Rule requirements are not applicable.

Repair of the approach lighting system would generate particulate matter from ground-disturbing activities (e.g., grading, soil piles) on the portions of ground which are not under water at the time of repair and from combustion of fuels in construction equipment. Fugitive dust emissions would be greatest during the initial site preparation activities on dry ground and would vary from day to day depending on the construction phase, level of activity, and prevailing weather conditions.

Construction operations would also result in temporary emissions of criteria pollutants as combustion products from construction equipment, and low to negligible evaporative emissions from concrete curing or sealing operations.

A minor contribution of GHGs would be anticipated through the combustion of fossil fuels associated with the use of vehicles and equipment during construction. Also, a small amount of indirect GHG emissions would result from production of the cement used for the concrete foundations of the lighting towers. Total GHG emissions from the Proposed Action would be extremely small in the context of either national or global total GHG emissions.

### 3.1.3.2 No Action Alternative

Under the No Action Alternative, Eglin AFB would not repair the approach runway lighting system at the north end of Runway 01/19 and would not comply with all federal, state, and local regulations and codes; and environmental and aviation requirements to the maximum extent feasible. No runway lighting upgrades would occur. Consequently, conditions would be expected to remain the same as described in **Section 3.1.2** and the runway lighting infrastructure would continue to degrade and have unsafe maintenance conditions.

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<sup>1</sup> Although the 100 tpy threshold is not a regulatory driven threshold, it is being applied as a conservative measure of significance in attainment areas. The rationale for this conservative threshold is that it is consistent with the highest General Conformity *de minimis* levels for nonattainment areas and maintenance areas. In addition, it is consistent with Federal stationary source major source thresholds for Title V permitting that formed the basis for the nonattainment *de minimis* levels.

## 3.2 Human Health and Safety

### 3.2.1 Definition of the Resource

Human health and safety includes consideration of any activities and operations that have the potential to affect the safety, well-being, or health of the public and military personnel. The primary human health and safety issues identified in this section include workers' health and safety during construction runway lighting improvement activities.

Construction site and worker safety is largely a matter of adherence to regulatory requirements imposed for the benefit of employees and implementation of operational practices (e.g., industrial hygiene) that reduce risks of illness, injury, death, and property damage. Industrial hygiene programs address exposure to hazardous materials, use of personal protective equipment (PPE), and availability of Material Safety Data Sheets. The health and safety of onsite military and civilian workers are safeguarded by DOD and Eglin AFB regulations designed to comply with standards issued by the OSHA, the USEPA, and state occupational safety and health agencies. These standards specify the amount and type of training required for industrial workers, the use of protective equipment and clothing, engineering controls, and maximum exposure limits for workplace stressors.

Construction and maintenance personnel would be exposed to aircraft and construction noise, electrical and biological hazards, and hazardous materials during runway lighting improvement activities and general maintenance of the lighting structures. Therefore, the ROI for human health and safety is within the limits of construction for the approach on the north end of Runway 01/19, where construction and maintenance personnel would be working.

### 3.2.2 Description of the Affected Environment

**Laws and Regulations.** A variety of USAF regulations address and govern the safety of the public and military personnel. These include Air Force Manual 91-201, *Explosives Safety Standards*; AFI 91-202, *U.S. Air Force Mishap Prevention Program*; Air Force Pamphlet 91-212; *Bird/Wildlife Aircraft Strike Hazard Management Techniques*; and AFI 91-302, *Air Force Occupational and Environmental Safety, Fire Protection, and Health (AFOSH) Standards*. Under 29 CFR 1960 series, OSHA standards do not apply to military-unique workplaces, operations, equipment, and systems. However, according to DOD instructions, they apply as much as is possible, are practicable, and are consistent with military requirements. AFOSH standards apply unless specifically exempted by variance or determined to be an acceptable deviation (USAF 2010a).

**Construction Workers.** Day-to-day operations, maintenance, and construction activities conducted at Eglin AFB are performed in accordance with applicable OSHA standards, USAF safety regulations, published Air Force Technical Orders, and standards prescribed by AFOSH requirements. Specific safety requirements and responses to events that could occur on the Eglin AFB ranges are detailed in published range operating procedures. All aspects of ground safety at Eglin AFB are within USAF standards. The safety practices and procedures have been firmly established, and these proven standards would continue to be followed. Ground operations and maintenance activities at Eglin AFB would continue to be conducted using the same processes and procedures as under current operations. All actions would be accomplished by technically qualified personnel and would be conducted in accordance with applicable USAF safety requirements, approved technical data, and AFOSH standards (USAF 2010a).

**Explosive Safety Quantity-Distance (ESQD) Areas.** ESQD areas are established under Air Force Manual 91-201, *Explosives Safety Standards*. ESQD areas are separation distances between explosive storage areas such as storage igloos, handling areas such as weapon-loading areas, and other areas such as “hot” cargo pads. ESQDs are based on the maximum storage capacity of each facility to prevent explosive propagation from one storage facility to another. Additionally, ESQDs are established to provide a safety zone between the explosive storage areas and the surrounding areas. The largest ESQD area on Eglin AFB is on the north side of the runways, away from the developed area. This area surrounds the facilities of the munitions storage area. A second ESQD area surrounds the flightline operations zone, 800 feet from the arm/disarm pads and hot refueling and aircraft parking apron, and 700 feet from the former alert apron (USAF 2010a).

**Contaminated Materials.** Eglin AFB has implemented a comprehensive Hazardous Material Management Process for the management of hazardous materials on the installation. This process comprises several elements: the Hazardous Material Cell, a single point for hazardous material requests, evaluation, and authorization; the tracking system that connects the review/authorization and the distribution/collection process, the Hazardous Materials Management System; and customer service-based storage and distribution process. Eglin AFB has also developed programs to comply with all federal and state hazardous materials reporting requirements. This effort includes submittal to the state and local emergency planning committees and local fire departments of annual Tier II forms, which are updated inventories of hazardous materials (e.g., jet fuel, diesel) or extremely hazardous substances in excess of specific threshold limits.

Eglin AFB is classified as a large-quantity generator of hazardous waste (40 CFR 260.10 and 262.34). The installation maintains a USEPA hazardous waste generator identification number (ID No. FL8570024366). Hazardous wastes are generated during operations and maintenance activities. Types of waste include combustible solvents from parts washers, inorganic paint chips from lead abatement projects, fuel filters, metal-contaminated spent acids from aircraft corrosion control, painting wastes (e.g., paper with chrome from overspray, thinners), battery acid, fixer, corrosive liquids from boiler operations, toxic sludge from wash racks, aviation fuel from tank cleanouts, and pesticides (USAF 2010a).

Hazardous wastes are initially stored at approximately 155 Initial Accumulation Points at work locations. No more than 55 gallons of hazardous waste or 1 quart of acutely hazardous waste can be accumulated at these points. Once the storage limit is reached, the waste is taken to the central Hazardous Waste Accumulation Site (Building 524), where the waste can be accumulated for up to 90 days. Eglin AFB maintains and implements a Hazardous Waste Management Plan that identifies hazardous waste generation areas and addresses the proper packaging, labeling, storage, and handling of hazardous wastes (including ozone-depleting substances). The plan also addresses record keeping; spill contingency and response requirements; and education and training of appropriate personnel in the hazards, safe handling, and transportation of these materials. Procedures and responsibilities for responding to a hazardous waste spill or other incident are also described in the Spill Prevention Control and Countermeasures (SPCC) Plan (USAF 2010a).

The Environmental Restoration Program (ERP) is used by the USAF to identify, characterize, clean up, and restore contaminated sites. There is one ERP site less than 0.5 miles east of Runway 01/19 (ERP Site D7, which is now known as LF-08). LF-08 is an inactive landfill cell undergoing long-term monitoring (USAF 2010a) (See **Section 3.3.2** for further details on LF-08).

**Noise.** The ambient sound environment within the bounds is dominated by the noise from aircraft operations (See **Figure 3.1**). The runways at Northwest Florida Regional Airport are used by military aircraft from Eglin AFB and commercial aircraft. These operations are the primary sound sources contributing to the ambient noise environment. Considering the military aircraft operations within the vicinity of the runway lighting improvements, the ambient sound environment likely resembles an urban atmosphere.

**Electrical System.** A description of the existing electrical system at Eglin AFB is provided in **Section 3.7.2.2**.

**Biological Hazards.** Construction and maintenance personnel would be working directly in an area where venomous wildlife, insects, and plants could occur. These considerations include venomous snakes, alligators, spiders, scorpions, and stinging insects.

### 3.2.3 Environmental Consequences

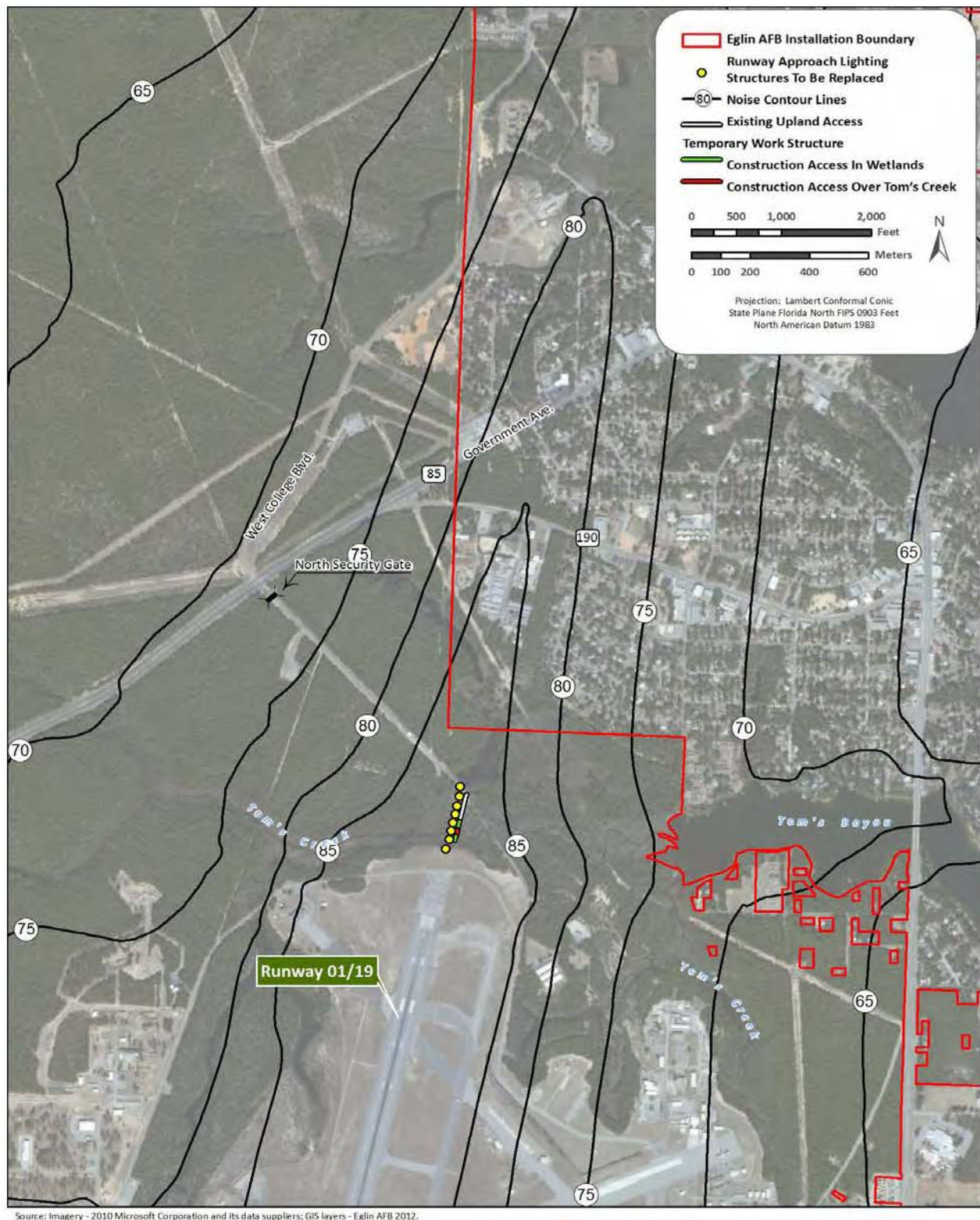
Any increase in safety risks would be considered an adverse effect on human health and safety. A proposed action could have a significant effect with respect to health and safety if the following were to occur:

- Substantially increase risks associated with the safety of construction personnel, contractors, or the local community
- Substantially hinder the ability to respond to an emergency
- Introduce a new health or safety risk for which the installation is not prepared or does not have adequate management and response plans in place.

#### 3.2.3.1 Alternative 4

**Construction Workers.** Negligible impacts would be expected on worker safety from activities related to the construction of a temporary access structure, installation of the platform, reduction in pile height, and the addition of stainless-steel sleeves over the creosote-treated pilings. The health and safety of contractors performing work at the project area would be managed by adherence to established federal, state, and local safety regulations. Workers would be required to wear protective gear such as ear protection, steel-toed boots, hard hats, gloves, and other appropriate safety gear. Areas undergoing construction and demolition would be fenced and appropriately marked with signs to prevent trespassing. Construction equipment and associated trucks transporting material to and from the project area would be directed to roads and streets that carry a minimum number of vehicles. Contractors would be required to establish and maintain health and safety programs for their employees. Health and safety programs would be properly implemented during construction and demolition activities, as required. Potential impacts on construction workers would be reduced with the implementation of BMPs and environmental protection measures described in **Section 4**.

**ESQD.** No impacts would be expected from activities related to the construction of a temporary access structure, installation of the platform, reduction in pile height, and the addition of stainless-steel sleeves over the creosote-treated pilings. No ESQD areas exist in the immediate vicinity of the project area. The ESQD areas on the north side of the runway and surrounding the flightline operations zone would not be impacted by runway lighting improvement activities proposed under Alternative 4.



**Figure 3-1. Noise Contours Associated with the Eglin Runway Lighting Improvements**

**Contaminated Materials.** Short-term, minor, adverse impacts from contaminated materials would be expected from activities related to the construction of a temporary access structure, installation of the platform, reduction in pile height, and the addition of stainless-steel sleeves over the creosote-treated pilings. Construction and maintenance personnel would be working directly in an area where the creosote piles are located. The removal and disposal of the creosote piles would be conducted in accordance with the installation's Hazardous Waste Management Plan and federal, state, and local regulations for hazardous waste disposal. No impacts on or from LF-08 would be expected, as construction and demolition activities would not disturb the soil or groundwater at LF-08. A health and safety officer should be present during excavation activities. If contamination is encountered, material would be handled, stored, transported, and disposed of in accordance with applicable federal, state, and local regulations (see **Section 3.3.2** for further details on impacts on or from LF-08). Potential impacts on or from contaminated materials would be reduced with the implementation of BMPs and environmental protection measures described in **Section 4**.

**Noise.** Short-term, negligible, adverse impacts on the noise environment would be expected from activities related to the construction of a temporary access structure, installation of the platform, reduction in pile height, and the addition of stainless-steel sleeves over the creosote-treated pilings. Construction workers would be exposed to periodic high noise levels during construction and demolition activities, as the project area is located directly under the flight path of aircraft approaching Runway 01/19 from the north. The noise from construction equipment and aircraft approaching the runway would be localized, short-term, and intermittent during machinery operations and flight operations. Heavy construction equipment would be used periodically during construction and demolition activities; therefore, noise levels would fluctuate throughout the day. Potential impacts on construction workers from construction noise and aircraft noise would be reduced with the implementation of BMPs and environmental protection measures described in **Section 4**. According to the Eglin airfield manager, the preferred option will be to close the runway for daytime landing during this project. This preference would include allowing aircraft departures only and landing would occur after hours. However, the 96 TW leadership would make the final decision on flight line operations. A typical fly day on Runway 19 at Eglin includes numerous F-35s, F-15s, F-16s, C-130s, KC-135s, MD-80s, CRJs and a few general aviation aircraft. The average number of flights per day is approximately 20 flights using both runways with an average of approximately 3 aircrafts operating per flight. The pilots typically make several practice approaches over the runways during their return. Flight operations conducted in close proximity to the project would include about 25 aircraft per day departing from Runway 19 at approximately 500 feet away from the work area. If the 96 TW leadership does not approve daytime closure, the potential exists for a dozen or more restricted low approaches (500 feet and above) over the work area to occur when the aircraft return.

**Electrical System.** Short-term, minor, adverse impacts would be expected on potential electrical system hazards to workers from activities related to the construction of a temporary access structure, installation of the platform, reduction in pile height, and the addition of stainless-steel sleeves over the creosote-treated pilings. Construction and maintenance personnel would be working in close proximity to electrical distribution lines, specifically, the 12-kV line that runs along the north (contractor) security gate road. The health and safety of contractors performing work near electrical distribution lines would be managed by adherence to established federal, state, and local safety regulations, as described under the previous subsection addressing construction workers. Potential impacts on construction workers would be reduced with the implementation of BMPs and environmental protection measures described in **Section 4**.

**Biological Hazards.** Short-term, minor, adverse impacts would be expected on potential biological hazards to workers from activities related to the construction of a temporary access structure, installation of the platform, reduction in pile height, and the addition of stainless-steel sleeves over the

creosote-treated pilings. Construction and maintenance personnel would be working directly in an area where venomous snakes, alligators, spiders, scorpions, and stinging insects could occur. The health and safety of contractors performing work where these biological hazards could be present would be managed by adherence to established federal, state, and local safety regulations, as described under the *Construction Workers subsection* in the preceding paragraphs. Potential impacts on construction workers would be reduced with the implementation of BMPs and environmental protection measures described in **Section 4**.

### 3.2.3.2 Alternatives 5 and 7

Short-term, minor, adverse impacts on potential health and safety conditions would be expected from activities related to construction of a temporary access structure; addition of stainless-steel sleeves; demolition, removal, or cutting of piles at the mudline; installation of new piles; and replacement of the walkway. Impacts on health and safety would be similar to, but slightly greater than those described under Alternative 4 (see **Section 3.7.3.1**). The demolition, removal, or cutting of creosote-treated piles at the mudline would result in slightly greater impacts from increased exposure to these chemicals. Potential impacts would be reduced with the implementation of BMPs and environmental protection measures described in **Section 4**.

### 3.2.3.3 No Action Alternative

Under the No Action Alternative, Eglin AFB would not repair the approach runway lighting system at the north end of Runway 01/19 and would not comply with all federal, state, and local regulations and codes; and environmental and aviation requirements to the maximum extent feasible. No runway lighting upgrades would occur. Consequently, conditions would be expected to remain unchanged as described in **Section 3.2.2** and the runway lighting infrastructure would continue to degrade. This degradation over time would create potentially unsafe maintenance conditions.

## 3.3 Hazardous Materials

### 3.3.1 Definition of the Resource

Waste and new materials become classified as hazardous only when the following are true: (1) the substance must be used in an industrial setting, and (2) the substance has one or more hazardous characteristics (i.e., it must be reactive, ignitable, corrosive, or toxic). Petroleum is not regulated in the United States as a hazardous material or waste, but it is regulated under other rules (see definitions for the Resource Conservation and Recovery Act [RCRA], CAA, CWA, Comprehensive Environmental Response, Compensation, and Liability Act [CERCLA], and other specific acts that apply in **Appendix A**).

### 3.3.2 Description of the Affected Environment

Eglin AFB produces a variety of wastes from activities related to aircraft maintenance, transportation, and civil engineering. Wastes, as associated with the construction activities under the Proposed Action, include spent solvents, process chemicals, waste paint, oils, and lubricants. AFI 32-7042 *Hazardous Waste Management Plan* identifies actions related to hazardous waste management that are required by RCRA, as enforced by the USEPA and the FDEP. This plan addresses the control and management of hazardous wastes when generated through the entire process to the ultimate action of disposal.



DOD requires that all facilities develop and implement Hazardous Material Emergency Planning and Response Plans or SPCC Plans. These measures are required to protect habitats and people from facilities inadvertently releasing potentially harmful hazardous substances. AFI 32-7080 *Pollution Prevention Program* identifies the required management actions for pollution prevention on Air Force installations and prescribes the establishment of Pollution Prevention Management Plans for each Major Command and installation. Eglin AFB has an SPCC Plan.

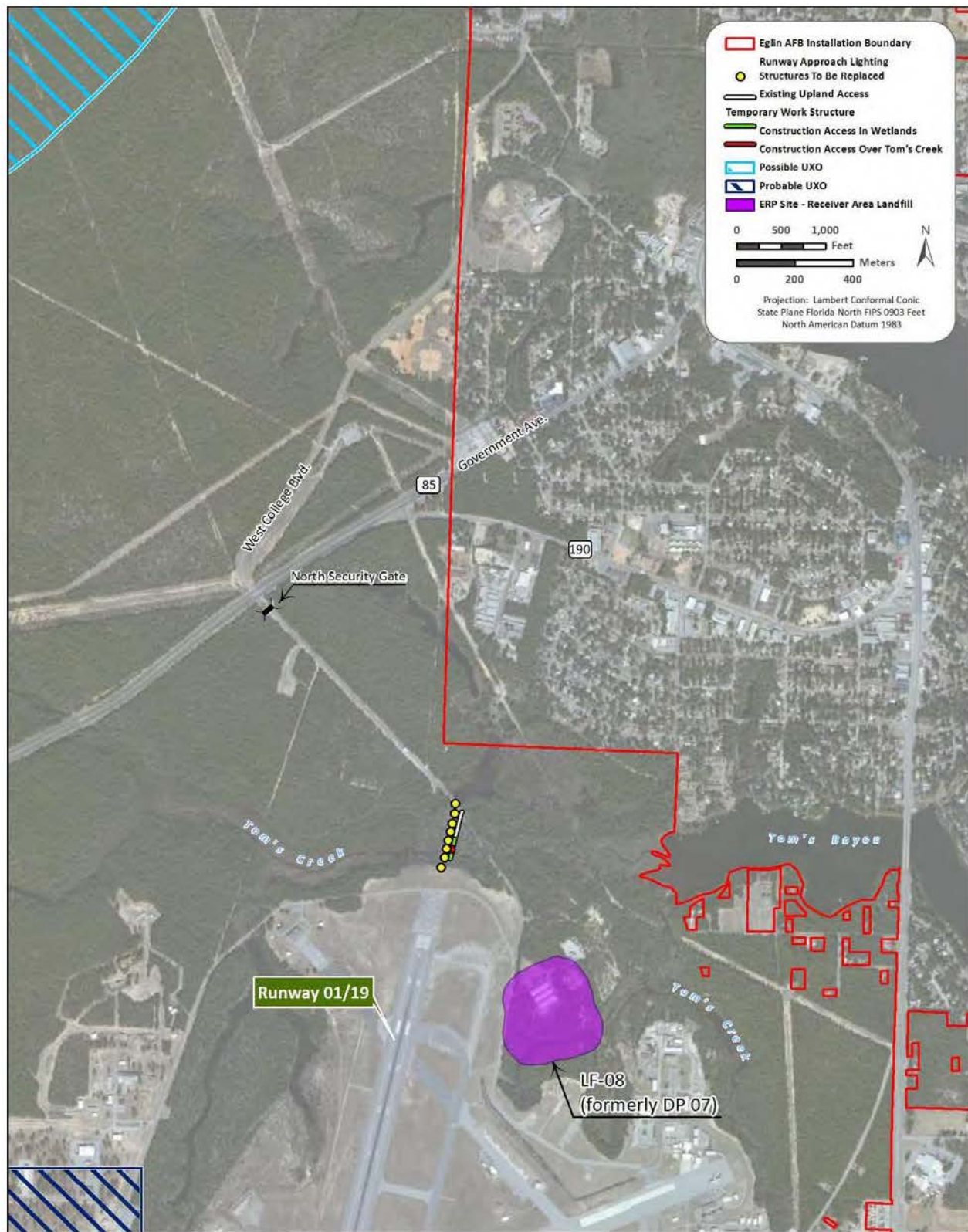
The 96 Civil Engineer Group/Environmental Restoration Branch (96 CEG/CEVR) manages Eglin AFB ERP sites and sets forth current site conditions and strategies for site restoration through the installation's Sites Status Report (SSR). The SSR describes sites of potential contamination and characterizes the condition of the soils, water resources, and other resources that might be affected by contaminants. The SSR identified one ERP site, the closed Receiver Area Landfill, Site LF-08 and previously designated as ERP Site D7, that is located along the paved access road leading to Buildings 935 and 938 (see **Figure 3-2**). LF-08 is less than 0.5 miles southeast of the Proposed Action. LF-08 encompasses approximately 10 acres. The landfill is covered with several feet of clean soil; however, three 10,000-square foot concrete pads are located on the site for use as storage areas for petroleum-contaminated soil. Landfill debris was disposed of during the 1970s at LF-08 and included tires, wire, spools, mattresses, and concrete. Other materials suspected of being dumped at the landfill include asbestos insulation, polychlorinated biphenyl transformers, electrical components, paint shop residues, Aqueous Film-Forming Foam, waste fuel and oil, solvents, septic tank pumping, federal prison garbage, pesticides, and pesticide containers. Metals were found in surface water and groundwater and chlorinated VOCs, petroleum hydrocarbons, pesticides, and metals were found in sediments (USAF 2003).

Creosote pilings are present within the area of the Proposed Action. Creosote has been designated by the USEPA as a hazardous substance. There are many different forms of creosote; however, the most widely used creosote as a wood preservative is coal tar creosote. The USEPA has deemed this chemical as a likely human carcinogen (Agency for Toxic Substances and Disease Registry [ATSDR] 2012). Creosote pilings have the potential to release heavy metals (arsenic), coal tars, and PAHs to the surrounding environment. Sediments surrounding the pilings could contain insoluble metals, coal tars, and PAHs. Factors that increase leaching rates of creosote include low current speeds (less than 1 centimeter per second) and lower salinities of surrounding waters (Stratus Consulting 2006).

### **3.3.3 Environmental Consequences**

Impacts on hazardous materials or hazardous waste would be considered significant if a proposed action resulted in noncompliance with applicable federal or state regulations, or increased the amounts generated or procured beyond current Eglin AFB waste management procedures and capacities. Impacts on the ERP would be considered significant if a proposed action disturbed or created contaminated sites resulting in negative effects on human health or the environment, or if a proposed action made it more difficult or costly to remediate existing contaminated sites.

Based on the required preventative measures and the avoidance of ERP site LF-08, there would be no significant, adverse impacts from the Proposed Action related to LF-08 for any of the provided Alternatives. For all alternatives, the Contractor would provide PPE to employees responsible for removing pilings. BMPs would be incorporated to reduce the impact of pile removal to Tom's Creek, and would remove material to the appropriate storage location as dictated by Eglin's 96 CEG/CEVR personnel. Impacts on hazardous materials and wastes would be reduced with the implementation of BMPs and environmental protection measures described in **Section 4**.



**Figure 3-2. ERP Sites Associated with the Eglin Runway Lighting Improvements**

### 3.3.3.1 Alternatives 4, 5, and 7

Short-term, minor, adverse impacts would be expected related to hazardous materials from activities associated with construction of a temporary access structure; installation of the platform; reduction in pile height; demolition, removal, or cutting of piles at the mudline; the addition of stainless-steel sleeves over the creosote-treated pilings; and replacement of portions of the walkway. Residual creosote may be disturbed during pile removal, requiring the use of additional BMPs as identified in **Section 4**. Construction activities would comply with the Eglin Pollution Prevention Plan. Long-term, minor, adverse effects could occur from potential creosote leaching into the wetland/floodplain area. However, potential leaching to the surrounding waterways would be reduced and contained by the installation of stainless-steel sleeves.

### 3.3.3.2 No Action Alternative

Under the No Action Alternative, the Proposed Action would not be implemented. No construction activities would occur; consequently, conditions would be expected to remain the same as described in **Sections 3.3.2**.

## 3.4 Soils

### 3.4.1 Definition of the Resource

Geological resources consist of the Earth's surface and subsurface materials. Within a given physiographic province, these resources typically are described in terms of geology, topography and physiography, soils, and, where applicable, geologic hazards (see **Appendix D** for definitions).

### 3.4.2 Description of the Affected Environment

**Regional Geology.** Eglin AFB is in the Coastal Lowlands physiographic province, an area predominantly underlain by sand with local occurrences of clay, shell beds, and peat (Eglin AFB 2010).

**Topography.** The characteristic topographic feature of the analysis area is an upland ridgetop extending to a steep terrace dropping to a wide, flat floodplain. These types of terraces developed from fluctuations in sea level that were eroded by narrow streams (Eglin AFB 2010). The construction efforts for the Proposed Action would occur in the flat floodplain area.

**Soils.** The upland portion of Eglin AFB is generally blanketed by up to 250 feet of primarily nonmarine quartz sands with some gravel and relatively thin clay lenses of the Citronelle Formation. The majority of soils on Eglin AFB are categorized as Lakeland and this includes the upland ridgetop and slope north of Runway 01/19. This is an excessively drained soil with sandy surface layers and sandy subsoils (Eglin AFB 2010, NRCS 2012).

Doravan muck is the soil unit mapped in the floodplain of Tom's Creek and the primary soil type mapped within the site of the Proposed Action. Mucks are composed of more than 20 percent of highly decomposed organic content and are classified as hydric soils. The water table is often at or near the surface and can have organic material more than 40 inches deep (Eglin AFB 2010, NRCS 2012). **Figure 3-3** shows the soils mapped within the site of the Proposed Action. In addition, the portion of the project located in the stream consists of primarily sandy sediments. These soils are previously disturbed by the construction of the existing lighting system. The existing creosote-treated timber piles may have

leached creosote-related compounds into the surrounding soils and sediments. The extent and concentrations are unknown. An overview of creosote as it pertains to effects on the environment is presented in **Section 3.3.2**.

**Geological Hazards.** Geologic hazards in the area are negligible; there are no active sinkholes and no damage is likely from seismic events (FCIT 2008). The U.S. Geological Survey has produced seismic hazard maps based on current information for the rate at which earthquakes occur in different areas and on how far strong shaking extends from the quake source. The hazard maps show the levels of horizontal shaking that have a 2 in 100 chance of being exceeded in a 50-year period. Shaking is expressed as a percentage of the force of gravity (percent g) and is proportional to the hazard faced by a particular type of building. In general, little or no damage is expected at values less than 10 percent g, moderate damage could occur at 10 to 20 percent g, and major damage could occur at values greater than 20 percent g. The 2008 United States National Seismic Hazards Map shows that the Eglin AFB region has a seismic hazard rating of 2 to 4 percent g, which represents potential for minor damage (USGS 2012).

### 3.4.3 Environmental Consequences

Protection of unique geological features, minimization of soil/sediment erosion and avoiding potential geologic hazards are considered when evaluating potential effects of a proposed action on geological resources. Generally, adverse effects can be avoided or minimized if proper construction techniques, erosion-control measures, and structural engineering design are incorporated into project development.

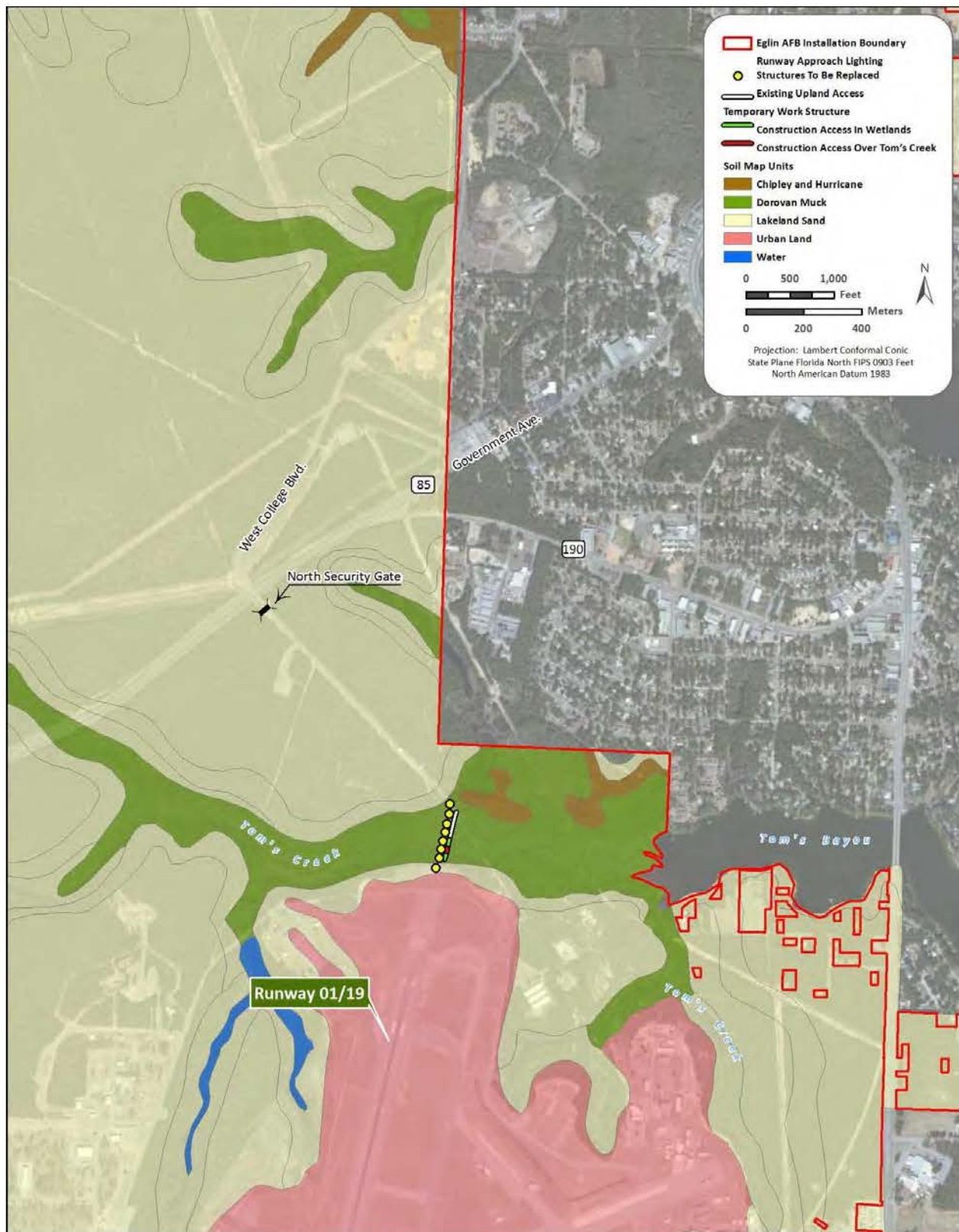
Effects on geological resources were assessed by evaluating the following:

- Potential to destroy unique geological features
- Potential for soil erosion
- Proximity to or impact on geologic hazards (such as locating a proposed action in a seismic zone)
- Potential to affect soil or geological structures that control groundwater quality or groundwater availability
- Alteration of soil structure or function.

#### 3.4.3.1 Alternatives 4 and 5

Short-term, minor, adverse effects on soils would be anticipated from activities related to the construction of a temporary access structure; reduction in pile height; demolition, removal, or cutting of piles at the mudline; installation of new piles; installation of the platform; the addition of stainless-steel sleeves over the creosote-treated pilings; and replacement of the walkway. The construction would require minor disturbance of previously disturbed soils for construction access that would result in an increased potential for soil erosion and sediment disturbance. Soil erosion would be limited by adhering to construction BMPs for work within wetlands and floodplains. These measures would include the use of construction mats, raised construction platforms, and erosion control devices such as silt fences. Additional minor disturbances would be caused during the installation of stainless-steel sleeves around the existing poles and the demolition, removal, or cutting of piles at the mudline. This construction may disturb soils and sediments with potential creosote-associated compounds due to potential leaching from the piles. A detailed discussion of creosote is presented in **Section 3.3**. The installation of the stainless-steel sleeves could have a long-term, beneficial effect on soils by creating a barrier to reduce any potential leaching of contaminants into the soils.





Source: Imagery - 2010 Microsoft Corporation and its data suppliers; GIS layers - Eglin AFB 2012.

**Figure 3-3. Soils Associated with the Eglin Runway Lighting Improvements**

### 3.4.3.2 Alternative 7

Short- and long-term, minor, adverse effects would be expected on soils from activities related to construction of a temporary access structure, demolition activities, addition of stainless-steel sleeves, installation of new piles, and replacement of portions of the walkway. The construction would require minor disturbance of previously disturbed soils for construction access, demolition of existing structures, installation of new poles, and the placement of stainless-steel sleeves over the remaining portions of creosote-treated pilings. This would result in an increased potential for soil erosion and sediment displacement from disturbance to the site, removal of vegetation, removal of existing piles from the ground, pile driving to set new piles, and the addition of stainless-steel sleeves over the abandoned portions of creosote-treated pilings. Soil erosion would be limited by adhering to construction BMPs for work within wetlands and floodplains. This alternative also has the potential to disturb soils and sediments with creosote-associated compounds during the demolition process. See **Section 3.3** for a detailed discussion on creosote. The removal of portions of the creosote piles structures, installation of the stainless-steel sleeves and the installation of new steel or concrete piles could have a long term, beneficial effect by eliminating potential for creosote leaching into the soils.

### 3.4.3.3 No Action Alternative

Under the No Action Alternative, Eglin AFB would not repair the approach runway lighting system at the north end of Runway 01/19 and would not comply with all federal, state, and local regulations and codes; and environmental and aviation requirements to the maximum extent feasible. No runway lighting upgrades would occur. Consequently, conditions would be expected to remain the same as described in **Section 3.4.2** and creosote may continue to leach from the poles into the soils and sediments within the bounds and the runway lighting infrastructure would continue to degrade and have unsafe maintenance conditions.

## 3.5 Water Resources/Wetlands

### 3.5.1 Definition of the Resource

The water resources section contains information relevant to surface waters, wetlands and floodplains, and their relationship to water quality. It also discusses the water quality programs that are enforced as part of these regulations (see **Appendix D** for extended definitions).

**Surface Water.** Surface water resources generally consist of wetlands, lakes, rivers, bayous, and streams. Surface water is important for its contribution to the economic, ecological, recreational, and human health of a community or locale.

A water body can be deemed impaired if water quality analyses conclude that exceedances of the water quality standards established by the CWA occur. The CWA requires that states establish a Section 303(d) list to identify impaired waters and establish Total Maximum Daily Loads (TMDLs) for the sources causing the impairment. A TMDL is the maximum amount of a substance that can be assimilated by a water body without causing impairment. The CWA also mandated the NPDES program, which regulates the discharge of point (end of pipe) and nonpoint (storm water) sources of water pollution and requires a permit for any discharge of pollutants into waters of the United States. Construction activities such as clearing, grading, trenching, and excavating displace soils and sediment. If not managed properly, disturbed soils and sediments can easily be washed into nearby water bodies during storm events and reduce water quality.

**Floodplains.** EO 11988, *Floodplain Management*, requires federal agencies to determine whether a proposed action would occur within a floodplain. This determination typically involves consultation of Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRMs), which contain enough general information to determine the relationship of the project area to nearby floodplains. EO 11988 directs federal agencies to avoid floodplains to the maximum extent possible wherever there is a practicable alternative. In accomplishing this objective, Section 1 of EO 11988 states that “each agency shall provide leadership and shall take action to reduce the risk of flood loss, to minimize the impact of floods on human safety, health, and welfare, and to restore and preserve the natural and beneficial values served by flood plains in carrying out its responsibilities” for the following actions:

- Acquiring, managing, and disposing of federal lands and facilities
- Providing federally undertaken, financed, or assisted construction and improvements
- Conducting federal activities and programs affecting land use, including water and related land resources planning, regulation, and licensing activities.

A FONPA must accompany the FONSI stating why there are no practicable alternatives to development within or affecting floodplain areas.

**Wetlands.** EO 11990, *Protection of Wetlands*, requires that federal agencies provide leadership and take actions to minimize or avoid the destruction, loss, or degradation of wetlands and to preserve and enhance the natural and beneficial values of wetlands. Federal agencies are to avoid new construction in wetlands, unless the agency finds there is no practicable alternative to construction in the wetland, and the proposed construction incorporates all possible measures to limit harm to the wetland. In accordance with 32 CFR Part 989.14, a FONPA must accompany the FONSI stating the reasons that no practicable alternatives exist to development within or affecting wetland areas. The FONPA must discuss why no other practicable alternative exists to avoid impacts to wetlands.

The USACE is responsible for making jurisdictional determinations and regulating wetlands under Section 404 of the CWA. Section 404 authorizes the Secretary of the Army, acting through the Chief of Engineers, to issue permits for the discharge of dredged or fill materials into the waters of the United States, including wetlands. Per Section 401 of the CWA, any applicant for a federal license or permit to conduct any activity, including the construction or operation of facilities that could result in any discharge into the navigable waters, is required to provide the licensing or permitting agency a certification from the state in which the discharge originates or will originate. In addition to supplying Section 401 water quality certification, Part IV, *Management and Storage of Surface Waters*, of Chapter 373 Florida Statute (F.S.), *Water Resources* mandates a state permitting process. Permitting under Chapter 373 F.S. is administered by the FDEP and Northwest Florida Water Management District (NFWFMD). At Eglin AFB, permitting is under the jurisdiction of the FDEP in accordance with an operating agreement between the two agencies. The Florida Environmental Resource Permit Program in Northwest Florida regulates impacts on wetlands at the state level and was implemented on November 1, 2010. This includes regulation of dredging and filling in, on, or over connected and isolated wetlands and other surface waters.

### 3.5.2 Description of the Affected Environment

**Surface Water.** The state of Florida in 62-302.40 F.A.C. classifies all surface waters according to their designated use. All alternatives involve work within Tom’s Creek, which is a Class III water body. Class III is designated for fish consumption, recreation, propagation, and maintenance of a healthy,

well-balanced population of fish and wildlife. **Figure 3-4** shows the water resources mapped within the site of the Proposed Action.

Tom's Creek is in the Choctawhatchee Bay hydrologic basin and is a seepage stream described as clear to lightly-colored, shallow, and narrow watercourse that originates from shallow ground waters. It is a perennial stream with relatively consistent flows except during extreme rain events. There is a large diversity of invertebrates and fish species in the streams of Eglin AFB (Eglin AFB 2010). It is also noted from field observation that Tom's Creek in the ROI has a sandy bottom with dense aquatic vegetation.

Tom's Creek flows to the east and outfalls into Tom's Bayou, which directly flows into Boggy Bayou and then into Choctawhatchee Bay. Tom's Creek is not listed on 303(d) list of impaired waters. However, Boggy Bayou (EPA Waterbody ID# 692) is designated as impaired for Dissolved Oxygen and Mercury in Fish Tissue (USEPA 2012c). A Final TMDL was established for Boggy Bayou for Dissolved Oxygen and Nutrients in March 2011. The designated boundaries of the TMDL watershed also encompass Tom's Bayou (USEPA 2011).

The existing creosote-treated timber piles may have leached creosote-related compounds into the sediments surrounding the piles in Tom's Creek. In addition, the creosote has potentially leached into the surface water of Tom's Creek. The extent and concentrations are unknown. A detailed discussion of creosote as it pertains to effects on the environment is presented in **Section 3.3**.

**Floodplains.** According to FEMA FIRM Map Number 12091C0370H for Okaloosa County, the alternatives are located within the 100-year floodplain (FEMA 2012). The floodplain area directly corresponds with Tom's Creek riparian wetlands.

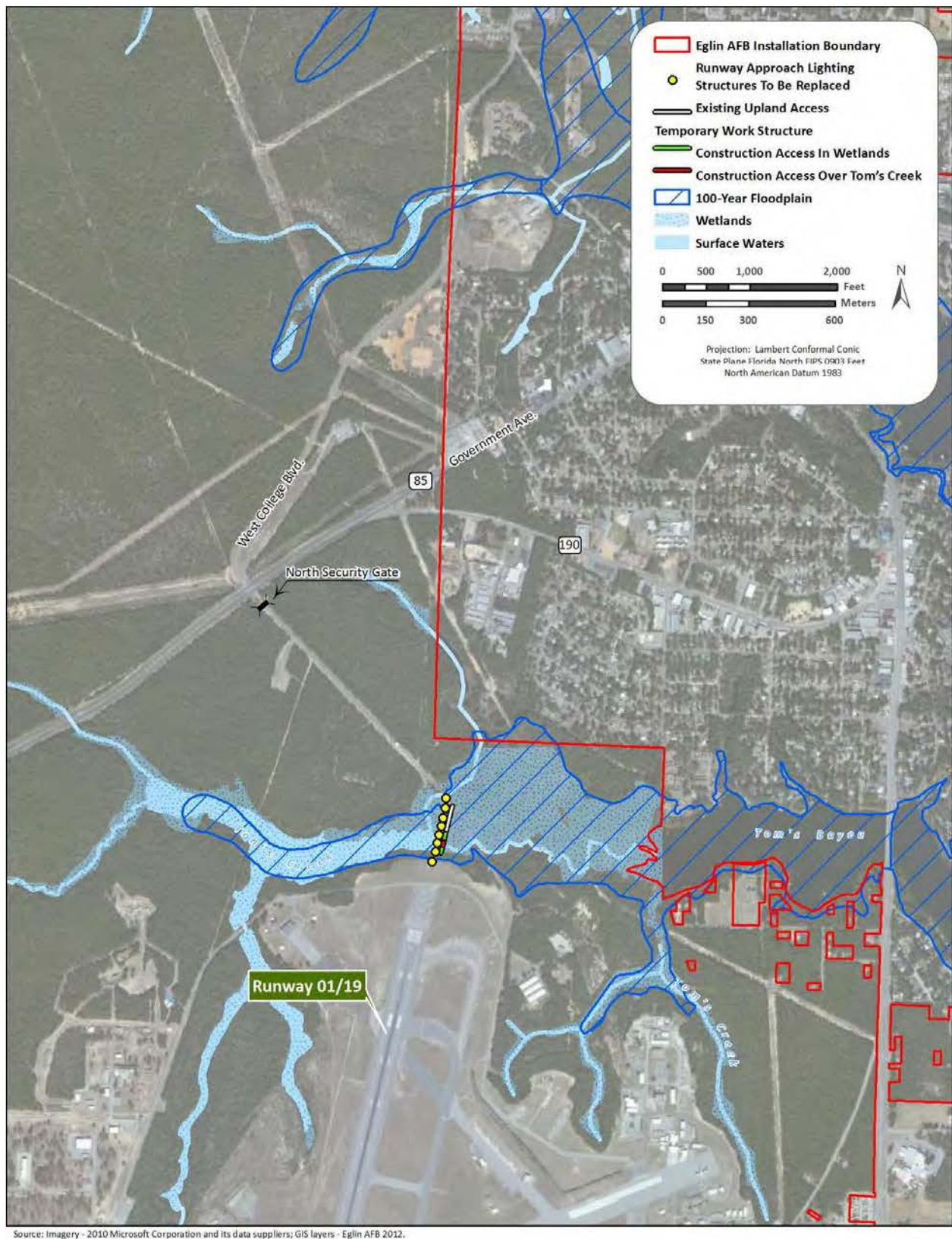
**Wetlands.** Eglin AFB supports an average of 65,350 acres of wetlands influenced by seasonal fluctuations in direct precipitation, overland or near surface flow, shallow groundwater, or some combination of these processes. The majority of the installation's wetlands are in good condition.

Some wetlands within Eglin AFB are degraded due to erosion of sediment from roadways, old borrow pits, and, on a few sites, from test area vegetation maintenance methods on slopes using various mechanical equipment such as choppers (Eglin AFB 2010).

Wetlands within the project area are categorized as palustrine freshwater forested/shrub and palustrine freshwater emergent wetlands (USFWS 2012). The emergent wetlands are those areas in closest relation to Tom's Creek and are in good condition. The forested/shrub wetlands are found within the floodplain of Tom's Creek and are impacted by fire suppression. Fire is an important component in maintaining a healthy ecosystem. However, when fire is suppressed, invasive, exotic plant species become dominant which creates a monoculture condition. This condition decreases the systems diversity and, therefore, affects the overall quality.

The existing creosote-treated timber piles may have also leached creosote-related compounds into the wetland soils and standing water surrounding the poles in the Tom's Creek floodplain. Personnel conducting site visits in 2011 have visually detected and documented sheens of creosote on the water's surface (Rogers 2012).





**Figure 3-4. Water Resources Associated with the Eglin Runway Lighting Improvements**

### 3.5.3 Environmental Consequences

Evaluation criteria for effects on water resources are based on water availability, quality, and use; existence of floodplains; and associated regulations. A proposed action could have significant effects with respect to water resources if any of the following were to occur:

- Substantially reduce water availability or supply to existing users
- Overdraft groundwater basins
- Exceed safe annual yield of water supply sources
- Substantially affect water quality
- Endanger public health by creating or worsening health hazard conditions
- Threaten or damage unique hydrologic characteristics
- Violate established laws or regulations adopted to protect water resources.

The potential effect of flood hazards on a proposed action is important if such an action occurs in an area with a high probability of flooding.

Determination of the significance of wetland impacts is based on (1) loss of wetland acreage, (2) the function and value of the wetland, (3) the proportion of the wetland that would be affected relative to the occurrence of similar wetlands in the region, (4) the sensitivity of the wetland to proposed activities, and (5) the duration of ecological ramifications. Impacts on wetland resources are considered significant if high value wetlands would be adversely affected or if wetland acreage is lost.

#### 3.5.3.1 Alternatives 4 and 5

Short-term, minor, adverse effects on surface water and wetlands would be anticipated from activities related to the construction of a temporary access structure; installation of the platform; reduction in pile height; demolition, removal, or cutting of piles at the mudline; and the addition of stainless-steel sleeves over the creosote-treated pilings. Long-term, minor, adverse effects on floodplains would be expected from activities related to the construction of a temporary access structure; installation of the platform; reduction in pile height; demolition, removal, or cutting of piles at the mudline; and the addition of stainless-steel sleeves over the creosote-treated pilings. Impacts would occur from soil and sediment disturbance, which could increase turbidity and water quality degradation. Water quality could be further degraded through the disturbance of existing creosote compounds in the soils and sediments associated with the existing creosote-treated piles. A detailed discussion of creosote is presented in **Section 3.3**. Under Alternative 4, the installation of the stainless-steel sleeves could have a long-term, beneficial effect on surface water and wetlands by creating a barrier to reduce any potential leaching of contaminants into the surface water and wetland soils. The removal of existing piles within the stream and cutting the piles at the mudline within the wetlands and floodplains (Alternative 5) would have a long-term, beneficial effect on surface water by eliminating the pile/water interface and reducing or eliminating any potential leaching of contaminants into the surface water. Impacts on water resources would be reduced with the implementation of BMPs and environmental protection measures described in **Section 4**.

Construction activities including temporary short-term access; reduction in pile height; demolition, removal, or cutting of piles at the mudline; and installation of stainless-steel sleeves around the existing poles, would result in soil and sediment disturbance. These disturbances in open water and wetland environments can quickly result in turbidity and transport of pollutants downstream. To reduce impacts

from access, the contractors will use the existing upland access located adjacent to the lighting system. In the wetland areas, methods that limit rutting or damage to soils, such as construction mats, will be used. Over the open water of Tom's Creek, at a minimum, a raised work structure would be used. After construction, the wetland mats and temporary raised work structure would be removed allowing for natural recruitment of vegetation to the disturbed areas. See **Figure 3-4** for the approximate location of construction access. In addition, turbidity curtains should be utilized during all work in open water areas.

The wetland/floodplain areas of Tom's Creek have been classified as jurisdictional waters of the United States and are regulated by the USACE. The project will require an Environmental Resource Permit from the state of Florida and a Section 404 Permit from the USACE for construction and impacts within wetlands and surface waters.

Water quality could be impacted by pollutants spilled or leaked during construction activities. In the event of a spill, procedures identified in the installation's SPCC Plan would be followed to quickly contain and clean up a spill. See **Section 3.3** for further information. There remains the possibility that a spill or leak could occur but implementation of the BMPs identified in the SPCC Plan would minimize the potential for and extent of contamination.

Long-term, minor, and adverse effects would occur from construction within the 100-year floodplain resulting in an increased potential for damage to the lighting system.

The installation of new steel or concrete piles could have a long-term, beneficial effect on surface water, floodplains, and wetlands by eliminating any potential leaching of creosote compounds into the soils and surface water.

### **3.5.3.2 Alternative 7**

Short- and long-term, minor, adverse effects would be expected on surface waters and wetlands from activities related to construction of a temporary access structure, demolition of portions of the creosote-treated piles, addition of stainless-steel sleeves, installation of new piles around abandoned creosote-treated piles, and replacement of portions of the walkway. Long-term, negligible to minor, adverse effects would be expected on floodplains from activities related to construction of a temporary access structure, addition of stainless-steel sleeves, installation of new piles, and replacement of portions of the walkway.

Construction activities, including temporary short-term access, demolition of existing structures and installation of new structures would result in soil and sediment disturbance. These disturbances in open water and wetland environments can quickly result in turbidity and transport of pollutants downstream. To reduce impacts from access, the contractors will use the existing upland access adjacent to the lighting system. In the wetland areas, methods that limit rutting or damage to soils, such as construction mats, will be used. Over the open water of Tom's Creek, at a minimum, a raised work structure would be used. After construction, the wetland mats and temporary raised work structure would be removed, allowing for natural recruitment of vegetation to the disturbed areas. See **Figure 3-4** for the approximate location of construction access. In addition, turbidity curtains should be used during all work in open water areas. Impacts on water resources would be reduced with the implementation of BMPs and environmental protection measures described in **Section 4**.

### 3.5.3.3 No Action Alternative

Under the No Action Alternative, Eglin AFB would not repair the approach runway lighting system at the north end of Runway 01/19 and would not comply with all federal, state, and local regulations and codes; and environmental and aviation requirements to the maximum extent feasible. No runway lighting upgrades would occur. Consequently, conditions would be expected to remain the same as described in **Section 3.5.2** and creosote may continue to leach from the poles into the wetlands and surface waters within the bounds and the runway lighting infrastructure would continue to degrade and have unsafe maintenance conditions.

## 3.6 Biological Resources

### 3.6.1 Definition of the Resource

Biological resources include native or naturalized plants and animals and the habitats (e.g., grasslands, forests, and wetlands) in which they exist. Protected and sensitive biological resources as relevant to the Proposed Action include listed (threatened or endangered), proposed, and candidate species under the ESA (16 U.S.C. 1536) as designated by the USFWS, state-listed threatened or endangered species, and migratory birds. Sensitive habitats include those areas designated by the USFWS as critical habitat protected by the ESA and sensitive ecological areas as designated by state or federal rulings. Sensitive habitats also include wetlands, plant communities that are unusual or of limited distribution, and important seasonal use areas for wildlife (e.g., migration routes, breeding areas, crucial summer and winter habitats).

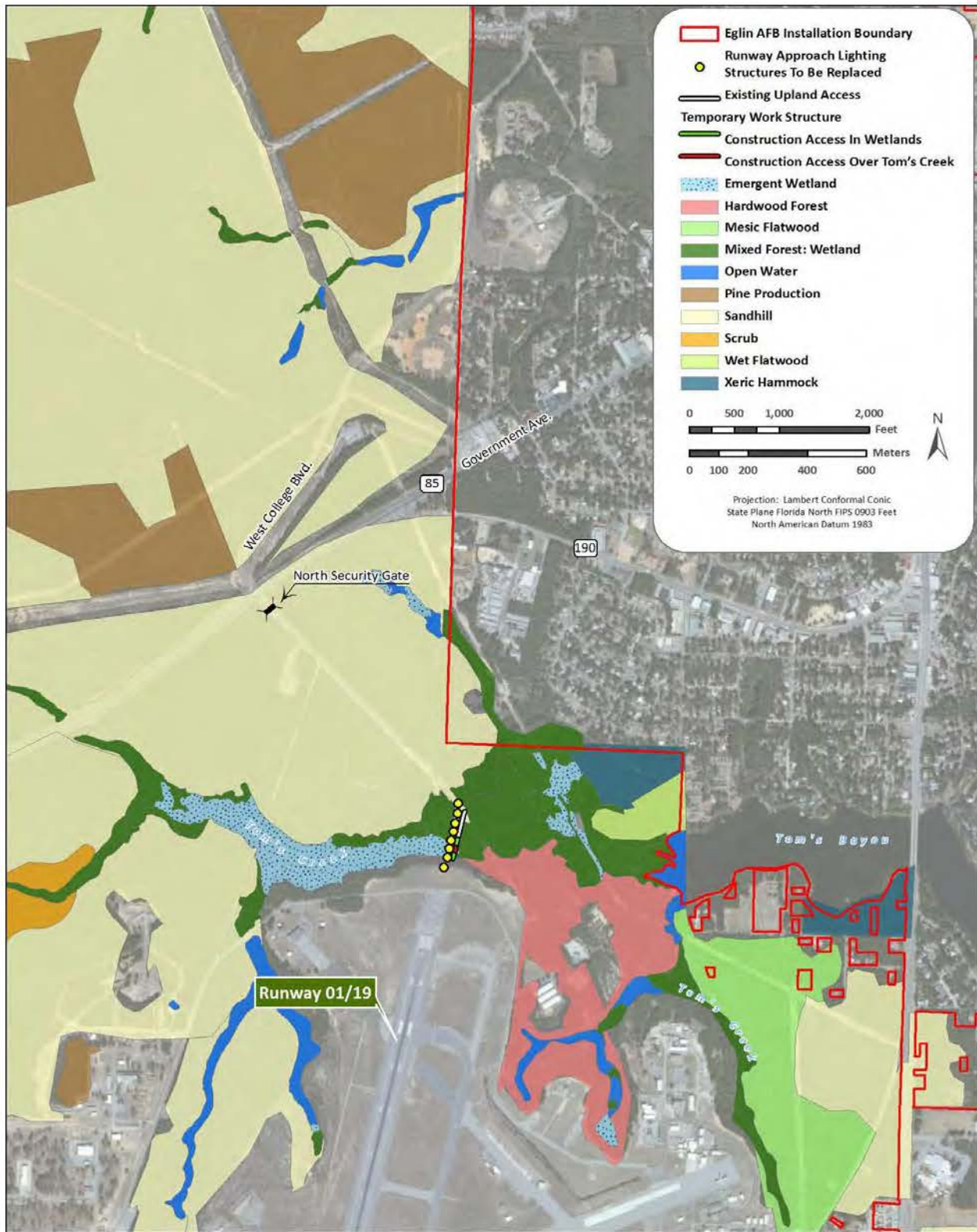
### 3.6.2 Description of the Affected Environment

Biological resources include native and introduced terrestrial and aquatic plants and animals found within the ROI for biological resources. This area extends in a 1,000-foot radius from construction associated with runway lighting structures proposed for replacement. For biological resources, the bounds are considered to be entirely within this ROI (refer to **Section 1.5.2**).

Habitat types are based on floral, faunal, and geophysical characteristics. The main habitat types, or ecological associations, within the bounds include the Sandhills Matrix (including hardwood forests) and the Wetlands/Riparian Matrix (specifically, emergent wetlands and mixed forest wetlands) (see **Figure 3-5**). Wetland hydrology is discussed in **Section 3.5**.

The Sandhills Matrix is the most extensive natural community type on Eglin AFB, accounting for approximately 78 percent (362,000 acres) of the installation. Longleaf Pine Sandhills are characterized by an open, savanna-like structure with a moderate to tall canopy of longleaf pine, a sparse midstory of oaks and other hardwoods, and a diverse groundcover composed mainly of grasses (wiregrass and bluestem), forbs, and low-stature shrubs. The structure and composition is maintained by frequent fires, (conducted approximately every 3 to 5 years), which control hardwood, sand pine, and titi encroachment. Functionally, the Sandhills Matrix provides maintenance of regional biodiversity (Eglin AFB 2010). Typical species occurring within the Sandhills Matrix are shown in **Table 3-2**. Some sensitive species could be expected to use the area, including the red-cockaded woodpecker (*Picoides borealis*), gopher tortoise (*Gopherus polyphemus*), Eastern indigo snake (*Drymarchons corais*), Florida pine snake (*Pituophis melanoleucus mugitis*), and the Florida black bear (*Ursus americanus floridanus*). The following paragraphs describe the sensitive species that could occur within the bounds as relevant to this habitat type. **Appendix E** provides additional descriptions of the habitat types and typical plants and animals within the bounds.





**Figure 3-5. Habitat Types within the Bounds of the Eglin Runway Lighting Improvements**

The removal of longleaf pine trees, degradation of quality habitat (i.e., due to fire suppression or ground disturbance), and noise generated from mission-related events or other activities are potential threats to the red-cockaded woodpecker on Eglin Range. Eglin AFB is executing a USFWS-approved management strategy to meet certain growth objectives and to obtain increased mission flexibility with the federal requirements related to red-cockaded woodpecker impacts (Eglin AFB 2010). The Eglin Enterprise Spatial Data (EESD) includes locations of active red-cockaded woodpecker cavity trees and inactive cavity trees. No cavity trees are present within the ROI.

As relevant to the ROI and this habitat type, the Eastern indigo snake inhabits the Sandhills Matrix during winter months and frequently uses gopher tortoise burrows for over-wintering. Eglin AFB manages this species by maintaining suitable habitat conditions, which includes prescribed burns in sandhills. The management and recovery of the Eastern indigo snake is closely linked to the gopher tortoise (Eglin AFB 2010). According to the EESD, only one gopher tortoise burrow, which serve as important habitat for many other commensal species, has been documented in the area. The sighting was documented during a survey in 2007. In addition to this burrow, potential gopher tortoise habitat also occurs within the bounds according to the EESD.

The Wetland/Riparian Matrix consists of wetlands, which are important contributors to the health and diversity of the landscape, and riparian areas, which are generally found along water features such as rivers, streams, or creeks. Great diversity of invertebrate and fish species is found within the streams associated with these watersheds. The streams originate in the sandy uplands of the installation, are perennial (continuously flowing), and fed by groundwater recharge. Flood events only occur during extreme rain events (e.g., hurricanes); otherwise, flows are relatively consistent (Eglin AFB 2010). Seepage streams, which are habitat to the Okaloosa darter (*Etheostoma okaloosae*) and exist within the bounds, are also included in this category. Typical species occurring within the Wetlands/Riparian Matrix are shown in **Table 3-3**. For additional information on wetlands, see **Section 3.5 Water Resources**.

The sensitive species of greatest concern for potential impacts arising from the improvements to the Eglin AFB runway lighting system is the Okaloosa darter, which occurs in the wetlands/riparian matrix. The Okaloosa darter is endemic to Okaloosa and Walton counties in Florida. Eglin AFB has management responsibility for 90 percent of the species' habitat. This darter occurs in only six small streams (249 linear miles) that flow into two bayous of Choctawhatchee Bay. These seepage streams have persistent discharge of clear, sand-filtered water through sandy channels, woody debris, and vegetation beds. Although the population of Okaloosa darter is currently increasing, the main threat arises from sedimentation from borrow pits and nonpoint source pollution related to roadways or right-of-ways (Eglin AFB 2010).

Based on EESD data, other sensitive species and habitats potentially occur within the bounds (see **Figure 3-6**). Sensitive habitat has previously been documented within the bounds and includes one identified gopher tortoise burrow, and potential gopher tortoise and potential Okaloosa darter stream habitats adjacent to the runway structures and within the bounds. Therefore, potential exists for these two sensitive species to be present. The Eastern indigo snake, another sensitive species, could also potentially occur here as noted in **Table 3-2** and based on potential for gopher tortoise habitat and the identified burrow. However, a site survey was conducted during the kickoff meeting for this project and there were no confirmed sensitive species within the bounds (Eglin AFB 2011). Neither the Florida black bear nor the pine snake has been sighted within the project area. **Appendix E** provides detailed descriptions of these species.

Migratory and resident birds could also be found on the site and are identified in **Appendix E**. Some birds migrate through Eglin AFB; however, Eglin AFB is not considered an important stopover area or a significant concentration site for neotropical migratory birds in the spring or fall (Tucker et al. 1996). Migratory and resident birds have historically been documented as most abundant on Eglin AFB in riparian habitat (Tucker et al. 1996). Although habitat for breeding neotropical migrants at Eglin AFB could occur, prime habitat has not been documented within the ROI.

Invasive nonnative plant species have been documented at many locations across Eglin AFB. Many of Eglin AFB's high-quality natural areas and sensitive species are threatened by these nonnative invasive species (Eglin AFB 2010). **Appendix E** contains more information on invasive species at Eglin AFB. No invasive species have been documented within the bounds for this project.

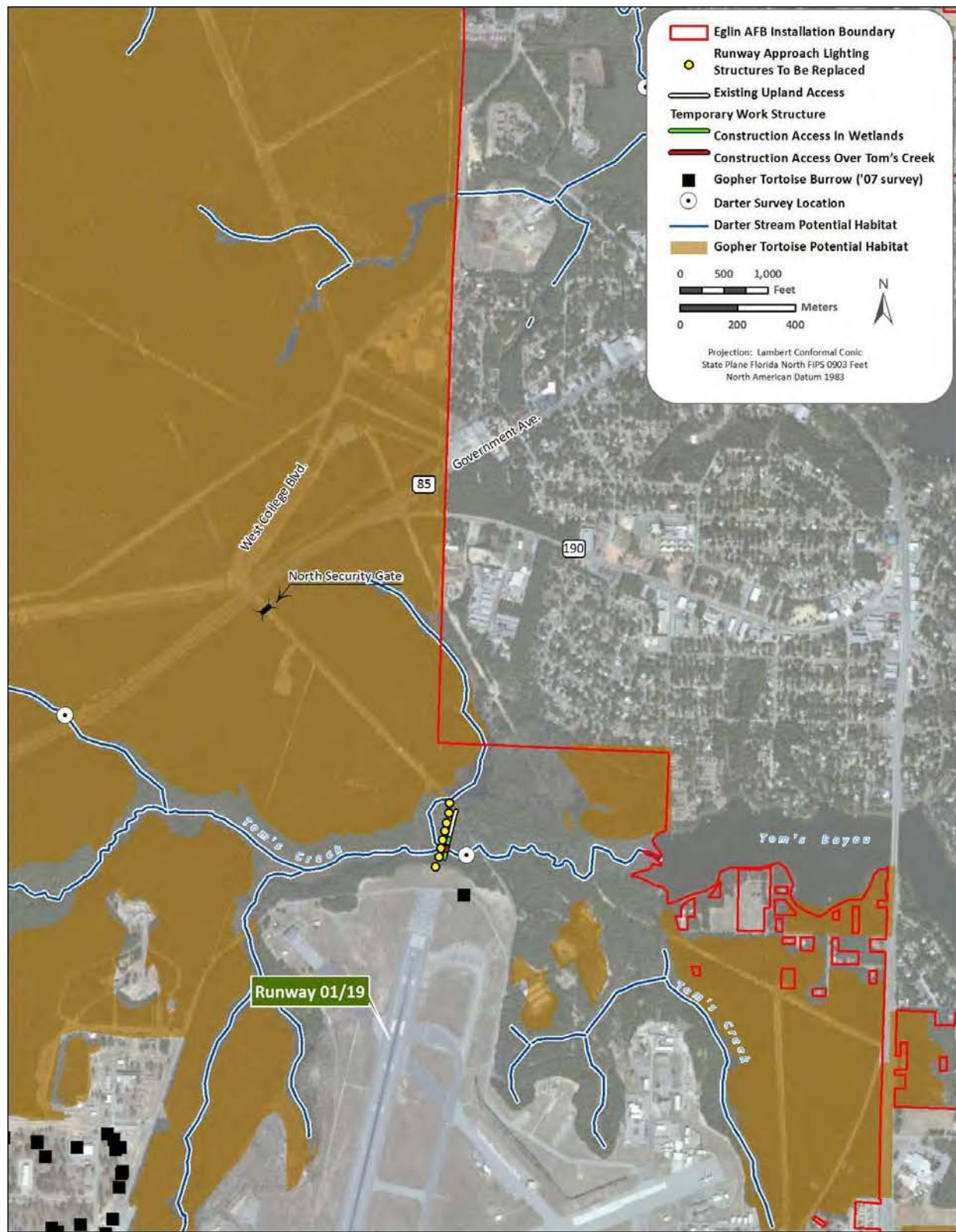
**Table 3-2. Typical Species and Sensitive Species Occurring within the Sandhills Matrix**

Common Name	Scientific Name
<b>Plants</b>	
Blackjack oak	<i>Quercus marilandica</i>
Blueberry	<i>Vaccinium</i> spp
Bluejack oak	<i>Q. incana</i>
Bracken fern	<i>Pteridium aquilinum</i>
Gallberry	<i>Ilex glabra</i>
Gopher apple	<i>Licania michauxii</i>
Long leaf pine	<i>Pinus palustris</i>
Pine-woods bluestem	<i>Andropogon arcatus</i>
Sand blackberry	<i>Rubus cuneifolius</i>
Saw palmetto	<i>Serona repens</i>
Turkey oak	<i>Q. laevis</i>
Wiregrass	<i>Aristida stricta</i>
Yaupon	<i>Ilex vomitoria</i>
<b>Birds</b>	
Bobwhite quail	<i>Colinus virginianus</i>
Great horned owl	<i>Bubo virginianus</i>
Red-cockaded woodpecker <sup>1</sup>	<i>P. borealis</i>
<b>Reptiles and Amphibians</b>	
Eastern diamondback rattlesnake	<i>Crotalus adamanteus</i>
Eastern indigo snake <sup>2</sup>	<i>D. corais couperi</i>
Florida pine snake <sup>4</sup>	<i>P. melanoleucus mugitis</i>
Gopher tortoise <sup>3, 5</sup>	<i>G. polyphemus</i>
Six-lined racerunner	<i>Cnemidophorus sexlineatus</i>
<b>Mammals</b>	
Cottontail rabbit	<i>Sylvilagus floridanus</i>
Florida black bear <sup>3</sup>	<i>U. americanus floridanus</i>
Fox squirrel	<i>Sciurus niger</i>
Least shrew	<i>Cryptotis parva</i>
Pocket gopher	<i>Geomys pinetus</i>
Raccoon	<i>Procyon lotor</i>
Source: Eglin AFB 2010. Key: 1 = federally listed endangered; 2 = federally listed threatened; 3 = state-listed threatened; 4 = state species of special concern; 5 = federal ESA candidate (Florida population).	

**Table 3-3. Typical Species and Sensitive Species Occurring within the Wetland/Riparian Matrix**

Common Name	Scientific Name
<b>Plants</b>	
Cattail	<i>Typha domingensis</i>
Phragmites	<i>Phragmites australis</i>
Purple pitcher plant	<i>Sarracena purpurea</i>
Redbay	<i>Persea borbonia</i>
Swamp titi	<i>Cyrilla racemiflora</i>
Swamp tupelo	<i>Nyssa biflora</i>
Sweetbay magnolia	<i>Magnolia virginiana</i>
Tulip poplar	<i>Liriodendron tulipifera</i>
White cedar	<i>Chamaecyparis thyoides</i>
<b>Bird</b>	
Little blue heron	<i>Egretta caerulea</i>
<b>Fish</b>	
Okaloosa darter <sup>1</sup>	<i>E. okaloosae</i>
<b>Reptiles and Amphibians</b>	
American alligator	<i>Alligator mississippiensis</i>
Five-lined skink	<i>Eumeces fasciatus</i>
Garter snake	<i>Thamnophis sirtalis</i>
Green anole	<i>Anolis carolinensis</i>
Pine Barrens tree frog	<i>Hyla andersonii</i>
<b>Mammals</b>	
American beaver	<i>Castor canadensis</i>
Florida black bear <sup>2</sup>	<i>Ursus americanus floridanus</i>
Raccoon	<i>Procyon lotor</i>
Source: Eglin AFB 2010. Key: 1 = federally listed threatened; 2 = state-listed threatened.	





Source: Imagery - 2010 Microsoft Corporation and its data suppliers; GIS layers - Eglin AFB 2012.

**Figure 3-6. Threatened and Endangered Species within the Bounds  
of the Eglin Runway Lighting Improvements**

### 3.6.3 Environmental Consequences

The level of impact on biological resources is based on (1) the importance (i.e., legal, commercial, recreational, ecological, or scientific) of the resource, (2) the proportion of the resource that would be affected relative to its occurrence in the region, (3) the sensitivity of the resource to the proposed activities, and (4) the duration of ecological ramifications. An impact on a biological resource would be considered significant if it was to cause a violation of the laws and regulations pertaining to biological resources (see **Appendix A**), if species or habitats of high concern are adversely affected over relatively large areas, or if disturbances cause reductions in population size or distribution of a species of special concern. A habitat perspective is used to provide a framework for analysis of general classes of effects (i.e., removal of critical habitat, noise, human disturbance).

Ground disturbance and noise associated with construction and improvement activities might directly or indirectly cause potential effects on biological resources. Direct effects from ground disturbance were evaluated by identifying the types and locations of potential ground-disturbing activities in correlation to important biological resources. Mortality of individuals, habitat removal, and damage or degradation of habitats are impacts that might be associated with ground-disturbing activities. Noise associated with a proposed action might be of sufficient magnitude to result in the direct loss of individuals and reduce reproductive output within certain ecological settings. Ultimately, extreme cases of such stresses could have the potential to lead to population declines or local or regional extinction. To evaluate effects, considerations were given to the number of individuals or critical species involved, amount of habitat affected, relationship of the area of potential effect to total available habitat within the region, type of stressors involved, and magnitude of the effects.

The ESA requires federal agencies, in consultation with the USFWS, to ensure that actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of any federal threatened or endangered species or result in the destruction or adverse modification of designated critical habitat of such species. The ESA also prohibits any action that causes a “take” of any listed species. “Take” is defined as “to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect or attempt to engage in any such conduct.”

#### 3.6.3.1 Alternatives 4, 5, and 7

**Habitats.** Short-term, direct, negligible to minor, adverse effects would be expected on habitats from activities related to the construction of a temporary access structure; installation of the platform; reduction in pile height; demolition, removal, or cutting of piles at the mudline; installation of new piles; and the addition of stainless-steel sleeves over the creosote-treated pilings. Impacts on habitats would be reduced with the implementation of BMPs and environmental protection measures described in **Section 4**. The following paragraphs provide information on potential effects on sandhills and wetlands within the bounds.

Approximately 27 acres of Sandhills Matrix (woodland area) are found within the bounds. The Sandhills Matrix covers approximately 362,000 acres on Eglin AFB. Therefore, potential direct impacts from the use of construction equipment and disturbance to the habitat would equate to a loss of less than 0.007 percent of the total acreage of Sandhills Matrix on the installation. Impacts on species that use this habitat would not be adverse.

Additionally, species that use wetland/riparian areas as habitat have the potential to be impacted from improvement activities within the bounds. Up to 32 acres of wetlands occur within the bounds and wetland/riparian habitats could be directly and indirectly affected. Therefore, potential direct impacts

from the use of construction equipment and disturbance to the habitat would equate to a loss of less than 0.066 percent of the total acreage of wetlands/riparian habitat on the installation. Staging and storage areas would be located outside of environmentally sensitive areas. These sensitive areas include threatened, endangered, or rare species habitats; and areas where erosion and sedimentation could have adverse impacts on water resources, such as wetland areas. Staging areas would be coordinated with Eglin NRS prior to construction, and would be sited to avoid environmentally sensitive areas. **Section 3.5.3.1** discusses these potential wetland impacts and **Section 4** identifies management actions that, if implemented, would minimize potential impacts on wetland/riparian areas and on sensitive species that use these areas.

**Wildlife.** Short-term, direct and indirect, negligible to minor, adverse effects would be expected on wildlife from activities related to the installation of the platform; reduction in pile height; demolition, removal, or cutting of piles at the mudline; installation of new piles; and the addition of stainless-steel sleeves over the creosote-treated pilings. The improvement activities have the potential to affect biological resources under Alternatives 4, 5, and 7 from noise, vehicles, habitat destruction/degradation, and human presence. The potential exists for impacts on wildlife from noise and direct encounters (e.g., crushing) with vehicles and equipment. To install the sleeves, a hollow stainless-steel pipe would be placed over the existing creosote pile and hammered into place, which would also introduce noise into the environment. This introduction of noise from hammering would also be the case during the installation of new piles. Due to noise and human presence, most wildlife would be expected to relocate temporarily from areas immediately surrounding the construction site and species would be expected to move back into the area following the completion from improvements. Additionally, some of the area is already developed and suitable habitat is available in areas adjacent to the work area. Local wildlife is also already exposed and habituated to visual and noise disturbances from aircraft activity. Therefore, upgrades to the runway lighting system would not result in long-term, adverse effects on wildlife.

Noise from improvement activities could disturb migratory and resident birds and other bird species within and adjacent to the site. However, Eglin AFB is not considered to be an important stopover area or a significant concentration site for neotropical migratory birds (Tucker et al. 1996). Migratory and resident birds such as those in the riparian areas might avoid habitats near the bounds, but would still have many available acres of habitat nearby to use. Therefore, although the generation of noise has the potential to affect migratory birds and resident bird species, other areas on Eglin AFB provide migratory and resident bird habitat. Impacts on migratory and resident birds from runway lighting improvements under Alternatives 4, 5, and 7 would not be adverse.

Although no invasive, nonnative species are documented within the bounds, disturbance to soil and vegetation from construction could enhance conditions for invasive nonnative plant species to establish and spread. However, once construction activities have ceased, the disturbed areas would be quickly reestablished by natural recruitment. Noxious weeds would be monitored pursuant to permitting requirements by the USACE and FDEP. Therefore, noxious weeds would not be expected to become permanently established in disturbed areas and no long-term, adverse impacts from noxious weeds would be expected.

**Threatened and Endangered Species and Species of Special Concern.** Short-term, direct and indirect, minor, adverse and beneficial effects would be expected on threatened and endangered species and species of special concern from activities related to construction of a temporary access structure; installation of the platform; reduction in pile height; demolition, removal, or cutting of piles at the mudline; installation of new piles; and the addition of stainless-steel sleeves over the creosote-treated pilings. Impacts on sensitive species would be reduced with the implementation of BMPs and

environmental protection measures described in **Section 4**. The following paragraphs address those species identified in **Section 3.6.2** with confirmed or likely occurrence within the bounds.

The sensitive species of greatest concern for potential impacts arising from the improvements to the Eglin AFB runway lighting system is the Okaloosa darter. Established construction methods would be used to minimize impacts on darter streams. For instance, work would proceed from a temporary access structure. On completion of the improvements to the runway lighting system, the temporary access structures would be removed and disturbed wetland and riparian areas would be regraded to pre-construction elevations to allow for the natural recruitment of vegetation.

Noise could be introduced into the water as a hollow stainless-steel pipe would be placed over existing creosote piles and hammered into place. This introduction of noise from hammering would also be the case during the installation of new piles. There is little information on impacts from particular sound sources in aquatic environments. However, the introduction of sound would be short-term and temporary. Furthermore, hammers would initially be operated at low levels, then gradually increased to the minimum necessary power required for pile removal or installation. During this ramp-up procedure, any aquatic species including Okaloosa darters, in the area would have the opportunity to detect the presence of increased sound and leave the area before full-power operations commence. Thus, no long-term, major impacts on the Okaloosa darter from sound related to hammering would be anticipated.

An alternative construction technique could include a coffer dam system that would be placed around a series of piles. This would consist of creating a box-like structure using sheet piles (similar to a seawall or retaining wall) and pumping the water out until the work area is dry. Then, concrete would be poured into forms for the footers. This approach could result in adverse impacts on Okaloosa darter habitat and the species, as water would be drained from the immediate area surrounding the piles to be included in the system. This change in drainage could alter the stream profile, morphology, and substrate stability, thereby affecting habitat features. Additionally, heavy equipment use would compact sediments and soils resulting in increased turbidity and suspended sediment. Habitat, however, would be restored to original conditions to the maximum extent feasible on completion of the improvements to the runway lighting system. Furthermore, to reduce potential impacts directly on the species, the feasibility of net blocking would be evaluated before construction activities commence. This assessment would include the likelihood and capability to prevent access by fish to the dewatered section of the stream prior to the cofferdam construction. Historically, personnel with Eglin AFB's NRS and the USFWS have monitored for Okaloosa darters in Tom's Creek within the ROI as shown in **Figure 3-6**. In addition, at the request of USFWS, Eglin conducted a survey on April 25, 2013, and found no darters at the site (Tate 2013). Based on the availability of other habitat, lack of documentation for Okaloosa darters within the ROI, and implementation of BMPs, it is anticipated that there would be no long-term, major impacts on the Okaloosa darter from runway lighting improvements under Alternatives 4, 5, and 7. On April 29, 2013, Eglin NRS concluded a determination of "No Effect" regarding Okaloosa darters and USFWS acknowledged the determination on May 1, 2013 (FWS Log No. 04EF 3000-2013-I-0167) (**Appendix B**).

In addition to potential short-term, minor impacts from construction activities, long-term, minor, beneficial effects would be expected on Okaloosa darters from the steel sleeves being placed over the existing creosote-treated piles and the demolition, removal, or cutting of piles at the mudline. Researchers have documented that wood-preserving compounds can continue to leach in very small amounts from installed piles, and that toxic components can be detected in sediment samples immediately adjacent to where piles exist. Factors affecting the release of these chemicals into the water include water movement and temperature and rainfall rate (Lebow et al. 2002). Components of creosote, in particular, can persist in the aquatic environment, although migration from the site is limited. These persisting chemicals can

remain at toxic levels to some animals. Plants uptake very little of the creosote from the environment. Animals such as crustaceans, shellfish, and worms, on the other hand, take up the creosote compounds in larger amounts. Tissue samples have shown detectable levels in mollusks living on and adjacent to piles (ATSDR 2012). Potential exists for bioaccumulation within the food web; however, fish generally metabolize or excrete PAHs. From other studies it could be expected that the beneficial impacts would be minor as it has been shown that creosote leaching is highest with initial installation up to one year post-construction (Brooks 2004). Based on these findings, any potential current leaching from the piles may be expected to be minimal as some of the structures are more than 20 years old.

Other sensitive species have the potential to be affected by runway lighting upgrades. No black bear sightings have been documented within the bounds (see **Figure 3-6**). However, the state-listed Florida black bear is a transient species that could occur almost anywhere on Eglin AFB. During improvements, any bears in the area would likely move away due to noise and human presence. Therefore, it is anticipated that there would be no impacts on the black bear from runway lighting improvements under Alternatives 4, 5, and 7.

The state-listed Florida pine snake and federally threatened Eastern indigo snake and gopher tortoise can be found anywhere on Eglin AFB. While these species prefer frequently burned pine forests, they also traverse lower quality habitats, and might use open areas such as sandy spots within developed areas. The bounds for the runway lighting project include up to 35 acres of urban area. Although these species could traverse within the bounds, this occurrence is unlikely. Furthermore, only one gopher tortoise burrow (which Eastern indigo snakes often use as refuges during the winter) has been documented within the ROI. Eglin AFB has developed standard practices for land-disturbing activities to minimize potential impacts in cooperation with the USFWS. The primary potential impact would be crushing by construction equipment during runway lighting improvements. Practices that would reduce impacts include ceasing activities if an Eastern indigo snake, Florida pine snake, or gopher tortoise is sighted and allowing the snake or tortoise to move away from the site before resuming activities. Surveys for Eastern indigo snake, Florida pine snake, and gopher tortoise (including burrows) and a contractor educational briefing would occur prior to construction.

All activities would avoid disturbance of gopher tortoise burrows. If a gopher tortoise burrow was sighted within the bounds, activities would not occur within 25 feet of the burrow until Eglin NRS personnel could deem the burrow clear of gopher tortoises and commensal species (i.e., Eastern indigo snakes) or relocate the animal. Based on adherence to the protective measures and the lack of presence of these species within the ROI, impacts on the species would not be expected to be significant. Therefore, it is anticipated that there would be no impacts on the Eastern indigo snake, Florida pine snake, or gopher tortoise from runway lighting improvements under Alternatives 4, 5, and 7. A Section 7 consultation under the ESA would not be required.

Existing piles located in the stream and associated with the walkway would be removed from the system. The piles in the wetland and floodplain areas would be cut off at the mudline and left in place. Existing piles would likely be removed with a crane or similar piece of equipment using a strap or grapple type method and simply pulled straight up and out of the substrate. Other methods suggested could include jetting out with high-pressure water to loosen the sediments around the piles. This action would be the least preferred due to the major adverse impacts to arise from sedimentation and direct effects on water quality. Removal with a crane would result in short-term impacts related to increased turbidity. Potential effects would be temporary and localized in nature. Jetting on the other hand creates a larger area of soil and sediment disturbance from high-pressure water. The high pressure is required to blast away sediment to excavate out the piling. Both extraction and installation would occur from the temporary structure. Established construction methods would be used to minimize impacts on darter streams as previously

discussed. The introduction of sound into the terrestrial and aquatic environments would be short-term and temporary.

### **3.6.3.2 No Action Alternative**

Under the No Action Alternative, Eglin AFB would not repair the approach runway lighting system at the north end of Runway 01/19 and would not comply with all federal, state, and local regulations and codes; and environmental and aviation requirements to the maximum extent feasible. No runway lighting upgrades would occur. Consequently, conditions would be expected to remain the same as described in **Section 3.6.2** and creosote may continue to leach from the poles into the wetlands within the bounds and the runway lighting infrastructure would continue to degrade and have unsafe maintenance conditions.

## **3.7 Utilities and Infrastructure**

### **3.7.1 Definition of the Resource**

Infrastructure consists of the systems and physical structures that enable a population in a specified area to function. The infrastructure components to be discussed in this section include transportation, utilities, and solid waste management. Transportation includes major and minor roadways that feed into the installation; and the security gates, roadways, and parking areas on the installation. Public transit, rail, and pedestrian networks are also elements of transportation. Utilities include water supply, electrical supply, sanitary sewer and wastewater systems, and storm water management. Solid waste management primarily relates to the availability of landfills to support a population's residential, commercial, and industrial needs.

### **3.7.2 Description of the Affected Environment**

Based on the existing utilities and transportation in the area, the ROI to be analyzed in this section includes the area that extends from the North Gate entrance to the perimeter Runway Road. Maintenance of traffic along this road would be required during utility relocations. The ROI for solid waste includes Eglin AFB and the surrounding counties, where landfill resources are located.

**Transportation.** The existing road from the North Gate entrance to the perimeter Runway Road is primarily used for commercial and contractor use. These conditions would continue until scheduled utility relocations or interruptions would occur. During relocation or interruptions, alternate transportation resources and security gates in the vicinity would be used. The alternate access points would include the Main Gate (West Gate) near the city of Shalimar accessed from the State Road 189/State Road 397 intersection, the East Gate accessed from the city of Valparaiso along State Road 397, and a gate located off of State Road 85 at Nomad Way.

**Water Supply.** The FDEP regulates the potable water supply systems in Florida. The Florida Safe Drinking Water Act and FDEP rules incorporate federal primary and secondary drinking water standards, as identified in the Safe Drinking Water Act (42 U.S.C. 201, 300 et seq.) and the National Primary Drinking Water Regulations. The Florida Water Resources Act (Florida Statutes, Title 28 Section 373) requires a comprehensive approach to water management based on regional hydrological boundaries and provides for the creation of five regional water management districts, one of which includes Eglin AFB (NFWFMD) (USAF 2010a).

Potable water at Eglin AFB is derived from a series of 18 potable water system wells located throughout the installation. Typically, the only treatment process required is chlorine disinfection at each of the wells. The wells have an overall production capacity of 2,100 gallons per minute (3.03 million gallons per day). The installation has four water storage tanks. The potable water is provided to the installation through two separate systems that the USAF owns and operates. The Main Base/Ammunition Area water system supplies the areas east of the runway and the Housing Area water system supplies the other areas on the installation (USAF 2010b).

**Electrical Supply.** Gulf Power serves all of Santa Rosa County and most of Okaloosa County. Gulf Power is an operating company of the Southern Company, along with Georgia Power Company, Alabama Power Company, Mississippi Power Company, and Savanna Electric. Gulf Power has generating plants in the cities of Pensacola, Pea Ridge, Sneads, and Lynn Haven, Florida, all of which provide electrical utility service throughout northwest Florida. The majority of electricity provided to Eglin AFB (91 percent) is provided by Gulf Power; however, the Choctawhatchee Electric Cooperative, Inc. (Chelco) services the White Point Area (9 percent), which is outside of the bounds for this project. The USAF currently owns and operates the entire electrical distribution system on the installation. Gulf Power owns and operates the Eglin West Gate Substation and West Side Hurlburt Field Substation (USAF 2010b).

**Sanitary Sewer and Wastewater System.** The CWA (33 U.S.C. 1151 et seq., 1251 et seq.) is the basic federal legislation governing wastewater discharges. The implementing federal regulations include the NPDES permitting process (40 CFR Part 122), general pretreatment programs (40 CFR 403), and categorical effluent limitations, including limitations for pretreatment of direct discharges (40 CFR 405, et seq.). The Florida Air and Water Pollution Control Act (Florida Statutes, Title 28 Section 403) govern industrial and domestic wastewater discharges in the state. The implementing state regulations contained in F.A.C. 62 establish water quality standards, regulate domestic wastewater facility management and industrial waste treatment, establish domestic wastewater treatment plant (WWTP) monitoring requirements, and regulate storm water discharge (USAF 2010a). The 96th Civil Engineer Group (96 CEG), Environmental Compliance Branch manages WWTP permits and related compliance requirements in accordance with applicable USAF regulations at Eglin AFB (USAF 2010b).

Wastewater at Eglin AFB is processed at one of five WWTPs owned and operated by the installation. Discharges from all WWTPs on Eglin AFB are regulated by the NPDES permit and closely monitored by the FDEP and installation to ensure continued compliance with applicable environmental laws and regulations. Nearby public WWTPs include the Arbennie Pritchett Water Reclamation Facility and the Niceville, Valparaiso, Okaloosa County (NVOC) WWTP (USAF 2010b).

**Storm Water Management.** F.A.C. 62-346 regulates storm water discharge facilities and permitting, and design requirements are outlined in the FDEP and NFWFMD Environmental Resource Applicant's Handbook Volumes I and II. Part II of Volume II establishes the general design and performance criteria for storm water management systems. All activities that require an individual permit under F.A.C. 62-346 are required to provide reasonable assurance that the construction, alteration, operation, maintenance, removal, or abandonment of a storm water management system will not cause adverse effects, as specified in F.A.C. 62-346-301 (USAF 2010b).

**Solid Waste Management.** Collection and disposal of municipal solid waste (MSW) at Eglin AFB is conducted by contract and administered by the 96 CEG. A commercial contractor hauls MSW and construction and demolition debris to a transfer station in Fort Walton Beach prior to final disposal at a Class I or Class II landfill. Solid waste generated in the ROI from the Proposed Action would include construction and demolition debris associated with construction activities. Construction and demolition



debris would be recycled to the maximum extent practicable. Construction and demolition debris that could not be recycled would require landfill capacity within the ROI (USAF 2010a).

Landfills in the immediate vicinity of Eglin AFB include those operated in Okaloosa, Walton, and Santa Rosa counties. Okaloosa County operates a Class I landfill for MSW disposal near Baker, Florida. Three privately owned construction and demolition landfills (i.e., Waste Recyclers, Point Center, and Arena landfills) are also located in Okaloosa County. Walton County operates and maintains a Class I and Class III landfill for county residents. The landfill accepts any household or construction and demolition waste (except hazardous waste). The landfill is located near DeFuniak Springs and is permitted for “high rising” (i.e., a process of expanding the landfill upward), which will extend the service life of the landfill until 2020. Four privately owned construction and demolition landfills (i.e., Coyote East, Coyote West, J&K, and Waste Recyclers landfills) are also located in Walton County. There are two landfills operated in Santa Rosa County. The Central Landfill is a Class I landfill, which primarily serves the central portion of Santa Rosa County. A Class III landfill is also located at the Central Landfill. The total size of Central Landfill is approximately 550 acres. The service life of the Central Landfill is estimated to end in 2075. Four privately owned construction and demolition debris landfills (i.e., Coyote Navarre, Joiner Fill Dirt Inc., Persimmon Hollow, and Tower Ridge landfills) are also located in Santa Rosa County. All landfills in Okaloosa, Walton, and Santa Rosa counties are operated and maintained either by the respective county or private entity and are permitted by the FDEP. The management and disposal of solid waste is regulated by federal and state agencies (USAF 2010a).

### 3.7.3 Environmental Consequences

Effects on infrastructure are evaluated based on their potential for disruption, excessive use, or improvement of existing levels of service and additional needs for energy and water consumption, sanitary sewer and wastewater systems, and transportation patterns and circulation. Effects might arise from physical changes to circulation, construction activities, introduction of construction-related traffic on local roads or changes in daily or peak-hour traffic volumes, and energy needs created by either direct or indirect workforce and population changes related to installation activities. In considering the basis for evaluating the significance of effects on infrastructure resources, several items are considered. These items include, for example, evaluating the degree to which the proposed construction projects could affect the existing solid waste management program and capacity of the area landfill. An effect might be considered adverse if a proposed action exceeded capacity of a utility.

#### 3.7.3.1 Alternatives 4, 5, and 7

**Transportation.** Short-term, minor, adverse impacts on the transportation network would be expected from construction activities associated with Alternatives 4, 5, and 7. Construction and demolition activities would require the delivery of materials to and removal of construction and demolition debris from the project areas. Construction traffic would compose a small percentage of the total existing traffic and many of the vehicles would be driven to and kept on site for the duration of construction resulting in relatively few additional trips. Any potential increases in traffic volume associated with construction and demolition activities would be temporary. During construction and demolition activities, contractors would use North Security Gate Road to access the project area. North Security Gate Road crosses under and between two approach lighting structures associated with the Proposed Action. In addition, the contractor would be required to implement a Maintenance of Traffic Plan. Therefore, short-term, minor, adverse impacts would be expected on operators of vehicles that use North Gate Security Road because traffic levels as a result of additional construction and demolition activities would slightly increase.



Alternative gates would be available in the event of temporary road closures during utility relocations or interruptions.

**Water Supply.** Short-term, negligible, adverse impacts on water supply would be expected from construction activities associated with Alternatives 4, 5, and 7. Construction and demolition activities would require minimal amounts of water, primarily for dust-suppression purposes. This water would be obtained from the installation's water supply system. It is assumed that construction activities would be staggered; therefore, any potential increases in water demand would be temporary, intermittent, and minimal. Potential impacts on the water supply would be reduced with the implementation of BMPs and environmental protection measures described in **Section 4**. No impacts on the groundwater supply would be expected from contamination, as the creosote poles would be cut and left in place.

**Electrical Supply.** Long-term, beneficial impacts on the electrical system would be expected from construction activities associated with Alternatives 4, 5, and 7. Repairing the approach lighting system would increase the reliability of the electrical power at Runway 01/19, provide for better maintenance of the lighting system, and extend out the service life of the lighting system. It is not anticipated that lighting service at the installation would be significantly interrupted during construction and demolition activities. Any disruptions in power supply would be temporary; therefore, potential impacts would be considered minor. Potential impacts on the electrical system would be reduced with the implementation of BMPs and environmental protection measures described in **Section 4**.

**Sanitary Sewer and Wastewater System.** No impacts on the sanitary sewer and wastewater system would be expected from construction activities associated with Alternatives 4, 5, and 7. During construction and demolition activities and upon completion of either Alternative 4, 5, or 7 there would be no increase in the demand for sanitary sewer and wastewater treatment.

**Storm Water Management.** Short-term, negligible to minor, adverse impacts on storm water drainage would be expected from construction activities associated with Alternatives 4, 5, and 7. Alternatives 4, 5, and 7 would not alter existing storm water drainage methods or significantly increase the amount of impervious surfaces at the installation. However, runoff from construction and demolition activities would flow into nearby receiving water bodies and could result in a slight increase in turbidity. Potential impacts would be reduced with the implementation of BMPs and environmental protection measures described in **Section 4**.

**Solid Waste Management.** Short- and long-term, negligible, adverse impacts on solid waste disposal would be expected from construction activities associated with Alternatives 4, 5, and 7. Construction and demolition debris that is not recycled would be disposed of in one of the landfills on Eglin AFB, which would be considered a long-term, irreversible, adverse impact. Construction debris is generally composed of clean materials, and most of the construction debris would be recycled. Contractors hired for the various construction projects would be responsible for the removal and disposal of their construction and demolition debris and wastes generated on site. Waste Management Services and Allied Waste Company both operate in Okaloosa County and can landfill or recycle construction wastes generated during implementation of Alternatives 4, 5, or 7, if needed. Potential impacts would be reduced with the implementation of BMPs and environmental protection measures described in **Section 4**.

### **3.7.3.2 No Action Alternative**

Under the No Action Alternative, Eglin AFB would not repair the approach runway lighting system at the north end of Runway 01/19 and would not comply with all federal, state, and local regulations and codes; and environmental and aviation requirements to the maximum extent feasible. No runway lighting upgrades would occur. Consequently, conditions would be expected to remain the same as described in **Section 3.7.3** and the runway lighting infrastructure would continue to degrade and have unsafe maintenance conditions.

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## 4. BMPS AND ENVIRONMENTAL PROTECTION MEASURES

The following BMPs and environmental protection measures will be implemented to minimize impacts associated with the Proposed Action on the resource areas analyzed in this EA and the cumulative impacts analysis. With the implementation of these BMPs and environmental protection measures, impacts will be reduced to a level of insignificance.

### Air Quality

No BMPs or environmental protection measures are anticipated for air quality under the Proposed Action.

### Human Health and Safety

**Safety.** During runway lighting improvements, typical industrial safety standards and BMPs will be followed. These will include implementing procedures to ensure that equipment guards and PPE are in place; establishing programs and procedures regarding right-to-know, hearing conservation, and heavy equipment operations; performing regular safety inspections; and developing a plan of action for the correction of any identified hazards.

All contractors performing construction activities will be responsible for following safety regulations and worker compensation programs and will be required to conduct activities in a manner that does not pose any risk to workers or personnel. Contractor responsibilities will be to review potentially hazardous workplace operations; to monitor exposure to workplace chemical (e.g., asbestos, lead, hazardous material), physical (e.g., noise propagation), and biological (e.g., infectious waste) agents; and to recommend and evaluate controls and PPE to ensure personnel are properly protected or unexposed.

**Hazardous Materials and Wastes.** AFD 32-70, *Environmental Quality*, establishes the policy that the USAF is committed to the following:

- Cleaning up environmental damage resulting from its past activities
- Meeting all environmental standards applicable to its present operations
- Planning its future activities to minimize environmental effects
- Managing responsibly the irreplaceable natural and cultural resources it holds in public trust
- Eliminating pollution from its activities wherever possible.

To protect people from inadvertent and potentially harmful releases of hazardous substances, the DOD has dictated that all facilities develop and implement Hazardous Material Emergency Planning and Response Plans or SPCC Plans. Disturbance to the nearby ERP site will be avoided. Hazardous wastes will be handled under the existing DOD RCRA-compliant waste management programs and, therefore, will not be expected to increase the risks of exposure to workers and installation personnel. For additional information on BMPs related to Hazardous Materials please refer to the **Hazardous Materials Subsection** of this chapter.

**Noise.** Construction workers will implement feasible administrative or engineering controls or use BMPs such as wearing hearing PPE to maintain compliance with applicable OSHA standards.

**Biological Hazards.** The temperature and time of year play an important role in determining which biological hazards will be active during construction and demolition activities. Some of the most common biological hazards and their prevention and treatment methods are as follows:

- *Ants, Bees, Wasps, and Hornets.*
  - Workers will follow typical safety measures, which include avoiding the use of perfumes or colognes, using insect repellent, and wearing protective clothing (long sleeves, long pants, and gloves).
  - Medical attention will be sought for severe reactions to stings or if multiple stings occur.
- *Spiders.* Spider bites can be harmful and potentially deadly to humans. If bitten, the victim will
  - Seek medical attention
  - Identify the species of spider, if possible.
- *Snakes.* Snakes will bite if surprised and some species are very aggressive. The following venomous snakes are common in Florida: copperhead, cottonmouth, and diamondback rattlesnake. If bitten by a venomous snake, workers will follow typical safety measures for snake bites including the following:
  - Keep the victim calm
  - Remove any restrictive items (e.g., clothing, jewelry, wristbands) from the bite area
  - Immobilize the area bitten and keep the area below the heart
  - Rinse the bite area with clean water
  - Seek medical attention immediately.

**ERP.** The DOD has also developed the ERP, intended to facilitate thorough investigation and cleanup of contaminated sites on military installations. Through the ERP, DOD evaluates and cleans up sites where hazardous wastes have been spilled or released to the environment. The ERP provides a uniform, thorough methodology to evaluate past disposal sites, control the migration of contaminants, minimize potential hazards to human health and the environment, and clean up contamination. Description of ERP activities provides a useful gauge of the condition of soils, water resources, and other resources that might be affected by contaminants. It also aids in identification of properties and their usefulness for given purposes (e.g., activities dependent on groundwater usage might be restricted until remediation of a groundwater contaminant plume has been completed). These plans and programs, in addition to established legislation (i.e., CERCLA and RCRA), effectively form the “safety net” intended to protect the ecosystems on which most living organisms depend.

In addition to avoiding the ERP site, the following BMPs will be employed:

- Construction activities will cease if personnel encounter any unusual odor, soil, or groundwater coloring, and the 96 CEG/CEVR at Eglin AFB will be notified immediately.
- Hazardous materials and wastes will be recycled or reused to the maximum extent practicable.
- Construction activities will comply with the installation’s SPCC Plan.

Project planning will include protection of ERP infrastructure such as monitoring wells, treatment systems, and conveyance pipes to avoid disruption of clean-up activities and minimize potential impacts on ERP infrastructure. All applicable environmental and safety requirements for hazardous materials as

identified by AFI 32-1023, *Design and Construction Standards and Execution of Facility Construction Projects*, will be followed.

## Hazardous Materials and Waste

AFPD 32-70 and the AFI 32-7000 series incorporate the requirements of all federal regulations, other AFIs and DOD directives for the management of hazardous materials, hazardous wastes, and special hazards. It is anticipated that the quantity of products containing hazardous materials used during the Proposed Action will be minimal and their use will be of short duration. Contractors will be responsible for the management of hazardous materials and petroleum products, which will be handled in accordance with federal, state, and USAF regulations. The quantity of hazardous wastes generated from the proposed activities will be minor and will not be expected to exceed the capacities of existing hazardous waste disposal facilities. Hazardous wastes will be handled under the existing DOD RCRA-compliant waste management programs and, therefore, will not be expected to increase the risks of exposure to workers and installation personnel. Prior to commencement of construction activities, the contractor will be required to obtain the necessary permits. All applicable environmental and safety requirements for hazardous materials, as identified by AFI 32-1023, *Design and Construction Standards and Execution of Facility Construction Projects*, will be followed.

**Contaminated Sediments and Debris.** The purpose of the following BMPs is to control turbidity and sediments that might contain creosote and which could temporarily re-enter the water column during pile removal (extraction) or cutting off at the mudline. The measures also prescribe debris capture and disposal of removed piles and other waste:

- The crane operator shall be trained to remove piles slowly. This will minimize turbidity in the water column and sediment disturbance.
- Work shall be performed in low water and low current, to the maximum extent possible.
- Piles will be cut at or below the existing substrate using a pneumatic underwater chainsaw.
  - Project-specific requirements for cutoff will be set by the project manager in consultation with Eglin AFB and FDEP, considering the mudline elevation and the presence of contaminants in the sediment. Generally, in subtidal areas with contaminated sediments, pilings should be cut off at the mudline to minimize disturbance of the sediment. In dry, intertidal areas and in uncontaminated, subtidal areas, piling should be cut off at least 1 foot below the mudline. Piles shall be cut off at the lowest practical tide condition and at slack water. This is intended to reduce turbidity due to reduced flow and a short water column through which piles must be withdrawn.
  - The removal contractor will provide the location of the cut piles using GPS. This will be necessary as part of debris characterization should future dredging be a possibility in the area of piling removal.
- The work surface on the barge deck or pier shall include a containment basin for piles and any sediment removed during demolition (extraction) or cutting.
  - The containment basin can be constructed of durable plastic sheeting with sidewalls supported by hay bales or support structure to contain all sediment. Water runoff can return to the waterway.
  - The work surface on barge deck and adjacent pier shall be cleaned by disposing of sediment or other residues along with cut-off pilings, as described in the bullet point addressing disposal.

- The containment basin shall be removed and disposed of in accordance with procedures described in the bullet point addressing disposal or in another manner complying with applicable federal and state regulations.
  - Upon removal from the substrate, the pile shall be moved expeditiously from the water into the containment basin. The pile shall not be shaken, hosed off, left hanging to drip, or any other action intended to clean or remove adhering material from the pile.
- The removed or cut pile shall be placed in a containment basin to capture any adhering sediment. This should be done immediately after the pile is initially removed from the water.
  - Use basin set up on the barge deck or adjacent pier
  - Basin can be made of hay bales and durable plastic sheeting.
- Prior to disposal, the piling shall be cut into 4-foot lengths with a standard chainsaw.
  - All sawdust and cuttings shall be contained in the container.
- For disposal, the contractor shall pack the piling and sediments, construction residue, and plastic sheeting from the containment basin into a container. For disposal, ship to an acceptable landfill. If a Universal Waste Manifest is used, it must be coordinated and signed by Eglin AFB personnel.
- To capture surface debris in water, a floating surface boom shall be installed. The floating surface boom shall be equipped with absorbent pads to contain any oil sheens. Debris and absorbent pads will be collected and disposed of along with cut-off piling as described under the previous disposal bullet point.
- Sediments spilled on work surfaces shall be contained and disposed of with the pile debris at the permitted upland disposal site.
- Holes remaining after piling removal shall not be filled.
- Turbidity curtains or screens shall be employed to allow suspended sediment to settle out of the water column in a controlled area, thus minimizing any contaminated sediment transport from the area of disturbance. Specific actions for these barriers include the following:
  - Turbidity barriers and installation parameters shall be selected for use with strict evaluation of the project site conditions. Relevant site conditions that the contractor shall consider include hydrodynamics, water depth, slopes, and debris.
  - Turbidity barrier bottoms shall be sufficiently anchored with weights or connected to sandy substrate via anchors. Positioning of the turbidity barrier to capture sediment-laden water is critical to success. Barriers shall remain in place and operational throughout construction.
  - Turbidity barriers shall be inspected after deployment and all necessary repairs shall be made immediately. The turbidity barriers and related components shall be removed immediately once the project activities are complete. Failure to do so could cause the barrier to come loose from its anchors and entangle benthic and other marine organisms.

## Geological Resources

BMPs will be implemented, and an approved erosion-and-sediment-control-plan (ESCP) will be followed to reduce effects of ground disturbance leading to increased erosion. With the implementation of BMPs and erosion and control measures, negligible to minor impacts on soils and sediments will be expected from implementation of the Proposed Action.

## Water Resources

BMPs will be implemented, and an approved ESCP will be followed to reduce effects of ground disturbance in and near wetlands and surface waters. Erosion and sediment control techniques could include soil erosion-control mats, silt fences, straw bales, and turbidity curtains and will be used as appropriate.

Implementation of BMPs during construction and adherence to all required permits will result in negligible to minor, adverse effects. Spill prevention plans and clean-up plans will be followed to prevent spills or leaks of hazardous materials or wastes from impacting the environment.

All construction BMPs will be approved by Eglin AFB Civil Engineering Department to ensure they are adequate. The construction site will also be subject to onsite inspections to ensure that sediment and erosion controls are compliant with the permitting requirements and that appropriate housekeeping measures are being employed. Assuming proper use of BMPs to contain construction effects on the active construction site, minor adverse effects could occur.

All fuels and other potentially hazardous materials will be contained and stored appropriately. In the event of a spill, procedures identified in the Eglin AFB SPCC Plan will be followed to contain and clean up a spill quickly.

A FDEP Environmental Resource Permit will be obtained prior to the initiation of construction activities.

An Individual Permit under Section 404 is required. Site design and construction methods will avoid impacts on water resources to the maximum extent possible, and BMPs and ESCPs will be implemented.

Effects on wetlands and other waters of the United States will be avoided to the maximum extent practicable through design and implementation of BMPs. In accordance with EO 11990, *Protection of Wetlands*, and AFI 32-7064, a FONPA is required for all projects occurring within wetlands and other waters of the United States. In addition, the affect on jurisdictional waters of the United States by the Proposed Action requires Eglin AFB to obtain a permit under Section 404 of the CWA for actions determined to impact jurisdictional waters adversely through dredging or placement of fill within waters of the United States. Eglin AFB will likely be required to compensate for the impacts made on these waters to comply with the “No Net Loss” national policy. To limit adverse impacts in wetland areas, methods that limit rutting or damaging soils, such as construction mats, will be used. Over the open water of Tom’s Creek, at a minimum, a raised work structure will be used. After construction, the wetland mats and temporary raised work structure will be removed allowing for natural recruitment of vegetation to the disturbed areas. Adherence to an ESCP should prevent surface water degradation.

## Biological Resources

Runway lighting improvements could have a localized effect on sensitive species and habitat. The following management actions are recommended during improvement activities to avoid and minimize the potential for adverse impacts on biological resources. Section 7 consultation under the ESA will not be required.

- Okaloosa darter protection and habitat protection to minimize impacts from all the construction activities will be implemented.



- An ESCP shall be submitted. This plan is to include revegetation of stream banks and riparian areas, as needed.
- Leave a 100-foot vegetative buffer, where possible, for Okaloosa darter streams.
- Contractors for the runway lighting improvements shall be informed about the presence of the Okaloosa darter and the importance of thorough implementation of protection measures, especially for erosion control.
- If cofferdam construction or the use of crane or clamshell pile extraction is selected by the contractor, the feasibility of net blocking to reduce potential impacts directly to the Okaloosa darter will be evaluated before construction activities commence. This assessment will include the likelihood and capability to prevent access by fish to the dewatered section of the stream.
- Hammers will initially be operated at low levels, then gradually increased to the minimum necessary power required for pile removal or installation. During this ramp-up procedure, any aquatic species, including Okaloosa darters, in the area will have the opportunity to detect the presence of increased sound and leave the area before full power operations commence.
- Protective measures for terrestrial protected species will be instituted.
  - Construction activities will abide by nondiscretionary BMPs per the *Indigo Snake Programmatic Biological Opinion for Eglin AFB* (USFWS 2009).
  - Surveys for Eastern indigo snake, Florida pine snake, and gopher tortoise (including burrows) are required prior to construction.
  - Before any clearing or construction activities begin, all personnel must view an informational brief on the Eastern indigo snake, Florida pine snake, and gopher tortoise.
  - Informational brochures containing the following information must be distributed to all contractors:
    - A description of the indigo snake, its habits, and protection under federal law.
    - Instructions not to injure, harm, harass, or kill this species.
    - Directions to stop clearing activities if an individual is sighted in the construction area and to allow the indigo snake sufficient time to move away from the site on its own before resuming clearing.
    - The telephone number to call if a live or dead Eastern indigo snake is encountered.
    - Instruction not to handle Eastern indigo snakes because only individuals with the appropriate state and federal permits are allowed to come into contact with the species.
  - All staging and storage areas will be sited to avoid impacts on gopher tortoise burrows and habitats.
  - If a gopher tortoise, Eastern indigo snake, or Florida pine snake is sighted, vehicle and equipment operators will cease any activities and allow the animal sufficient time to move away from the site on its own before resuming activities.
  - If a gopher tortoise burrow is discovered during land clearing or construction, all activities should be avoided within 25 feet of the burrow until Eglin NRS staff have examined the burrow and relocated the animal and any commensal species, if necessary.

- If any sightings of Eastern indigo snakes or gopher tortoises are made within the construction site, report information and findings to the Eglin NRS.
  - Instruct vehicle/equipment operators to stop activities if a Florida black bear is sighted and allow the animal to move away from the area before resuming activities. Personnel should report any sightings of black bears to the Eglin NRS.
- Spot-check construction areas to ensure early identification of infestation by invasive nonnative plant species. If any invasive or nonnative species are identified, coordinate with Eglin NRS for removal.
- Require offsite equipment to be cleaned of invasive, nonnative species prior to use for the first time on Eglin AFB to minimize potential transport of nonnative species onto the installation.

### **Utilities and Infrastructure**

Prior to initiating runway lighting improvements, the construction contractor will coordinate with local utility providers before beginning ground-disturbing activities to identify locations of buried utility lines and to tie into any existing utility infrastructure. Liquid fuels, if stored on site, will be stored in aboveground storage tanks with secondary containment. Ground-disturbing activities will avoid areas where electrical and natural gas utility lines are present.

### **Bird Airstrike Hazard**

The Bird Hazard Working Group requires that all airfield upgrades and construction projects include the consideration for making the project results less attractive for birds and wildlife. BASH reduction initiatives will be incorporated into the design.

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## 5. CUMULATIVE IMPACTS

The term “Proposed Action” is used to encompass Alternatives 4, 5, and 7 in this section because the environmental effects of each alternative on most resource areas would be similar. In some instances, references to a specific alternative are noted if the environmental consequences of that alternative vary from the other alternatives.

### 5.1 Cumulative Effects

#### 5.1.1 Definition of Cumulative Effects

CEQ defines a cumulative effect as the “impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions” (40 CFR 1508.7). Although individual impacts of various actions might be minor, taken together their effects could be significant.

The scope of the cumulative effects analysis involves both timeframe and geographic extent in which effects could be expected to occur, and a description of what resources could be cumulatively affected. Projects that are occurring at the same time or in the same vicinity and projects that are large in scope and affecting the same resources would have the greatest potential for cumulative effects. Past, present, and reasonably foreseeable future actions directly occurring within the geographical context of the project are discussed in **Sections 2.2.5, 2.2.6, and 2.2.7**. Other projects that have occurred or are occurring in and around Eglin AFB are discussed in the following text.

***Base Realignment and Closure (BRAC) and Joint Strike Fighter (JSF) Initial Joint Training Site (IJTS).*** In 2005, the Base Closure and Realignment Commission recommended three mission changes that affected Eglin AFB. By 2015, mission changes at Eglin AFB will result in an estimated population increase of 8,860 people in Okaloosa County and the surrounding areas, and increased economic activity of \$431.3 million (EDCOC 2007). These activities are included in the cumulative effects analysis because they represent important mission changes and substantial development activities.

The missions, and the details of each mission, include elements from BRAC and non-BRAC projects and are summarized as follows (USAF 2009):

- The 33rd Fighter Wing (33 FW) closed its operations with the F-15 Eagle in September 2009 and became DOD’s first F-35 Lightning II training wing on October 1, 2009. The mission of the 33 FW is to train USAF, U.S. Marine Corps, U.S. Navy, and international partner operators and maintainers of the F-35 Lightning II. The wing will reach full strength in 2014. F-35A aircraft arrived in August 2010.
- The JSF IJTS was established at Eglin AFB. This involved relocating pilot and maintenance instructor positions to Eglin AFB. A new cantonment area was constructed for the JSF IJTS in and around the existing 33 FW cantonment area, which is approximately 3 miles southwest of the Proposed Action analyzed in this EA.
- The Army’s 7th Special Forces Group was realigned to Eglin AFB.

- The Weapons and Armaments In-Service Engineering Research, Development & Acquisition, and Test and Evaluation and the Defense Threat Reduction Agency National Command Region Conventional Armament Research Organization was realigned to Eglin AFB.

The ROD for the Final BRAC EIS approved only 59 of the possible 107 aircraft for immediate assignment pending noise and airspace studies (USAF 2009). A Draft Supplemental EIS was released in September 2010 that (1) analyzed beddown locations, operational alternatives, and mitigations for the 59 F-35 authorized in the BRAC ROD, including use of Duke Field and construction of a new runway at Eglin Main Base; and (2) analyzed additional alternatives addressing the proposed distribution of JSF flight operations (USAF 2010a).

***Military Family Housing Privatization Initiative.*** Under the Military Family Housing (MFH) Privatization Initiative, a private developer would demolish, construct, and maintain MFH units on Eglin Main Base, Hurlburt Field, and Camp Rudder under a 50-year lease. A ROD and FONPA were signed in 2011 (USAF 2011). For the purposes of this cumulative analysis, only the activities proposed on Eglin Main Base are considered for cumulative effects because Hurlburt Field and Camp Rudder are approximately 15 and 21 miles, respectively, from the Proposed Action and would, therefore, have low potential for cumulative effects. Up to 849 MFH units will be demolished in the Poquito Bayou, Hidden Oaks, New Plew, Old Plew, Wherry, and Capehart neighborhoods; and up to 993 MFH units and other amenities will be constructed or renovated in the Hidden Oaks, New Plew, Old Plew, Wherry, and Capehart neighborhoods or surrounding areas. The closest areas of demolition and construction are the Hidden Oaks, New Plew, Old Plew, Wherry, and Capehart neighborhoods, which are approximately 3 miles to the south of the Proposed Action. This project is included in the cumulative effects discussion because it would result in substantial construction and demolition activities over the next few years, though these activities are removed from the Proposed Action.

***Mid-Bay Bridge Connector.*** The Mid-Bay Bridge Authority, with support from Eglin AFB and the USAF, has begun constructing the Mid-Bay Bridge Connector, a 10-mile, four-lane, toll facility primarily through Eglin AFB (USAF 2008, USAF 2010c). This road is being constructed in three phases over 5 years. Phase 1 begins at the Mid-Bay Bridge Toll Booth Plaza and terminates at Range Road. Phase 2 begins from Range Road and terminates at State Route 285. Phase 3 starts at State Route 285 and ends at State Route 85. Construction of Phase 1, which is more than 5 miles southeast of the Proposed Action, began in April 2009 and was completed in 2011. Construction of Phases 2 and 3 began in 2011 and are currently underway with scheduled completion in 2014. The terminus of Phase 3 will be approximately 5 miles to the north of the Proposed Action. This project is considered for potential cumulative effects on the Okaloosa darter and air quality. The distance between the planned Mid-Bay Bridge Connector and the Proposed Action would limit the potential for cumulative effects to occur on most resource areas.

***Emerald Coast Technology and Research Campus.*** Eglin AFB is in the process of creating a lease for 118 acres to establish the Emerald Coast Technology and Research Campus (ECTRC). Currently, 20 acres are associated with the University of Florida Research Engineering Education Facility, which is near the intersection of State Route 189 (Lewis Turner Boulevard) and Poquito Road. Approximately 98 acres of the parcel are proposed for development by a private developer under the Enhanced Use Lease program. The ECTRC is envisioned as a partnership campus between federal and state government, including the military at Eglin AFB, the private sector, and academia (96 ABW 2008a). The construction timeline for this project is uncertain. The ECTRC site is approximately 4 miles to the southwest of the Proposed Action. The ECTRC is included only generally in the cumulative analysis as an example of development activity on Eglin AFB. The distance between the planned ECTRC site and the Proposed Action would limit the potential for cumulative effects to occur on most resource areas.

## 5.1.2 Cumulative Effects Analysis

This section discusses the potential cumulative environmental effects of the Proposed Action when considered with other past, present, and reasonably foreseeable future actions on Eglin AFB. No significant, adverse cumulative effects were identified.

### Air Quality

The MPPCSMI AQCR is in attainment with NAAQS for all criteria pollutants. As discussed in **Section 3.1.3**, implementation of the Proposed Action would have short-term, minor, adverse effects on air quality. Other ongoing construction activities at Eglin AFB identified in this cumulative effects analysis would disturb larger areas, require more equipment, and take longer than the Proposed Action. Cumulatively, multiple construction projects occurring at the same time and in the same vicinity could result in localized, short-term, minor cumulative increases in air pollutants. Since construction emissions are temporary, they would not be expected to result in significant cumulative effects on air quality. Some projects are planned that would increase long-term air emissions. For example, the JSF IJTS would result in increased aircraft operations and projects like the Mid-Bay Bridge Connector and ECTRC would increase traffic and automobile emissions. Long-term, these projects could have adverse, cumulative effects on air quality. However, the Proposed Action would have a minor, short-term contribution and no long-term contribution to air quality would be anticipated; therefore, these effects would not be cumulatively significant.

### Human Health and Safety

Eglin AFB complies with all applicable AFOSH and OSHA regulations and munitions safety criteria to provide a safe working environment while supporting military readiness and training activities. As discussed in **Section 3.2.3**, the Proposed Action could pose an increased risk for a safety mishap during construction activities as a result of exposure to creosote-treated lumber support piles, the 12-kV electrical distribution line, and biological hazards (e.g., venomous snakes, alligators, spiders, scorpions, stinging insects). No specific ongoing or future projects have been identified in the immediate vicinity of the Proposed Action, though it is possible that runway or airfield infrastructure projects could occur, in accordance with the Airfield Infrastructure Plan or the F-35 beddown. Cumulatively, multiple construction projects occurring at the same time and in the same vicinity could result in short-term, minor, adverse cumulative effects by increasing local construction traffic accessing sites, increasing maintenance and repair activities, and creating highly noisy environs that could mask verbal or mechanical warning signals. Adherence to AFOSH and OSHA regulations would minimize the potential for adverse effects on construction workers. Cumulative effects on construction safety would be short-term and negligible to minor. The Proposed Action would contribute to long-term, beneficial cumulative effects on airfield safety by repairing airfield approach lighting and providing a platform that complies with environmental and aviation safety requirements. The Proposed Action would not have significant, adverse, cumulative effects on human health and safety when added to other cumulative actions on Eglin AFB.

### Hazardous Materials and Waste

Hazardous wastes and materials and ERP sites occur at Eglin AFB as a result of its historic and current use as a military installation. Eglin AFB has hazardous materials and hazardous waste management plans, including an SPCC Plan, that guide the use, handling, storage, and disposal of regulated materials in accordance with USAF, federal, state, and local laws and regulations. The Proposed Action could have short-term, minor, adverse effects from the use of hazardous materials during construction. Other

construction activities occurring at Eglin AFB, such as privatized MFH units and the ECTRC would also require the short-term use of hazardous materials. It is anticipated that increased hazardous or petroleum material used and wastes generated would be managed by existing Eglin AFB management plans and practices. Cumulatively, long-term effects would not be significant.

## Geology and Soils

The geographic extent of cumulative effects on geological resources is generally limited to areas where ground-disturbing activities would occur and adjacent areas. No specific ongoing or future projects have been identified in the immediate vicinity of the Proposed Action, although other runway or airfield infrastructure projects could occur in accordance with the Airfield Infrastructure Plan or the F-35 beddown. Ground-disturbing activities occurring at the same time and in the same vicinity could have short-term, minor, adverse cumulative effects on soil resources. However, implementation of erosion- and sediment-control BMPs would be expected to limit potentially adverse cumulative effects. Considering the small area that would be disturbed and that BMPs would be used to minimize erosion and sedimentation, the Proposed Action would not have significant, adverse, cumulative effects on geological resources when added to other cumulative actions on Eglin AFB.

## Water Resources

Installation activities on Eglin AFB have contributed to adverse effects on surface water quality and wetlands. Boggy Bayou, which is a receiving water body of Tom's Creek and Tom's Bayou, is on the 303(d) list of impaired waters and has a completed TMDL (USEPA 2012c). As development throughout Eglin AFB and the surrounding regions continues, water quality of surface water and wetlands could degrade. Projects requiring an NPDES permit for construction (i.e., those projects disturbing more than 1 acre, which includes most of the construction projects considered in this analysis) must also have ESCP and Storm Water Pollution Prevention Plans identifying specific BMPs to minimize potentially adverse effects on water bodies from individual construction projects; adherence to BMPs for individual construction projects would also minimize the cumulative potential for adverse effects to occur. As described in **Section 3.5.3**, the Proposed Action could result in short-term, adverse effects on surface water and wetlands. Long-term, minor, beneficial effects on water could occur by preventing potential creosote leaching into the surrounding water bodies from either removal of piles or installation of stainless-steel sleeves. The Proposed Action would involve work in floodplains, and replacing the lighting system within the floodplain could increase the potential for damage to the system itself. However, increases in impervious surface under the Proposed Action would be negligible, so it would not contribute to adverse cumulative effects on the floodplain. Given the extent of potential effects and that disturbances would last only during runway lighting improvement activities, the Proposed Action would not have significant, adverse, cumulative effects on water resources when added to other cumulative actions on Eglin AFB.

## Biological Resources

Eglin AFB is a large installation with high-quality habitat. There are 12 species listed as federally threatened or endangered that can be found on the installation either year-round or seasonally, and other federally listed species have been documented during seasonal migrations. Many other state-listed and rare species also occur on Eglin AFB. Eglin AFB has an Integrated Natural Resources Management Plan that is a reference and planning document for managing the installation's natural resources while maintaining mission readiness (Eglin AFB 2010).



Implementation of the Proposed Action would have short-term, negligible to minor, adverse effects on habitats and wildlife as a result of direct loss of habitat and noise. Ground-disturbing activities from other projects at Eglin AFB occurring at the same time and in the same vicinity, such as other runway or airfield infrastructure projects could occur in accordance with the Airfield Infrastructure Plan or the F-35 beddown, could have short-term, minor, adverse cumulative effects, but these would only last during those activities and would not be cumulatively significant.

Alternatives 4 and 7 could have short-term, minor, adverse effects; Alternative 5 has the potential for short-term, minor, adverse and beneficial effects on the Okaloosa darter. Personnel with Eglin NRS and the USFWS have monitored for Okaloosa darters in Tom's Creek within the ROI. Surveys have not indicated the presence of any darters at the site (Tate 2013). Negligible effects on the black bear, Eastern indigo snake, Florida pine snake, or gopher tortoise would be expected under any alternative. The Mid-Bay Bridge Connector was identified as having a high potential for impacts on the Okaloosa darter because the roadway would cross tributaries that are populated by the fish (USAF 2008, USAF 2010c). The USFWS's Biological Opinion (BO) on the Mid-Bay Bridge Connector determined that the project was not likely to jeopardize the continued existence of the Okaloosa darter. In accordance with the BO, Okaloosa darter populations will be monitored for a minimum of 5 years following the construction of the Mid-Bay Bridge Connector to assess the scope of that project's impact. Additionally, a comprehensive water quality monitoring plan will be developed to target road-related chemical pollutants that could be detrimental to the Okaloosa darter. FWC issued an Incidental Take of Listed Species permit for the Okaloosa darter for the Mid-Bay Bridge Connector project. Considering the use of management actions to minimize the potential for adverse effects on listed species (see the *Biological Resources* subsection of **Section 4**), implementation of the Proposed Action is not anticipated to have significant cumulative effects on the Okaloosa darter or other listed species when added to other current and future actions on Eglin AFB (See Eglin NRS "No Effect" letter and USFWS acknowledgment in **Appendix B**). This action would provide a long-term, beneficial effect for the species resulting from removing the existing creosote piles within the stream and walkway and cutting the piles in the wetland and floodplain at the mudline.

## Utilities and Infrastructure

Eglin AFB has well-developed transportation, water supply, electrical supply, sanitary sewer and wastewater, and storm water management systems that are maintained and improved as needed. The Proposed Action would result in short-term, minor, adverse effects on infrastructure systems, most notably transportation and storm water management, during runway lighting improvement activities. No specific ongoing or future projects have been identified in the immediate vicinity of the Proposed Action, but other runway or airfield infrastructure projects could occur in accordance with the Airfield Infrastructure Plan or the F-35 beddown. Construction activities occurring at the same time and in the same vicinity could have short-term, negligible to minor, adverse cumulative effects on infrastructure systems as a result of increased demand. However, infrastructure systems at Eglin AFB have adequate capacity to meet demand, so that these cumulative effects would not be significant. The Proposed Action would not have long-term, adverse effects on utilities from operations, so no long-term contributions to cumulative effects on utilities and infrastructure would be expected.

## 5.2 Unavoidable Adverse Impacts

Unavoidable adverse effects would result from implementation of the Proposed Action. The Proposed Action would result in short-term, adverse effects associated with construction activities, including increased noise, increased air emissions, minor interruptions to traffic flow, use and generation of small

amounts of hazardous materials and wastes, and generation of debris. None of these effects would be significant.

The Proposed Action would affect wetlands and floodplains, resulting in short-term, minor, adverse effects on surface water and wetlands and increasing the potential for damage to the lighting system because of its location in the floodplain. These effects are unavoidable because of the existing location of Runway 01/19 and the runway approach lighting structures. In addition, unavoidable impacts are necessary in order to comply with UFC 3-535-01, Section 3-1.4.3, *Obstruction Clearances*, as selective vegetative clearing will be required in the approach zone within a 200-foot-wide area as measured from each side of the runway centerline and 200-feet from the runway threshold and before the start of the approach zone. It is anticipated that the use of BMPs would minimize short-term, adverse effects on wetlands to the maximum extent practicable.

### 5.3 Compatibility of the Proposed Action and Alternatives with the Objectives of Federal, Regional, State, and Local Land Use Plans, Policies, and Controls

The Proposed Action would occur entirely within the boundaries of Eglin Main Base, and construction activities would not result in any significant or incompatible land use changes on or off the installation. The Proposed Action would not conflict with any applicable off-installation land use ordinances or designated clear zones.

### 5.4 Relationship Between Short-Term Uses and the Maintenance and Enhancement of Long-term Productivity

Short-term uses of the biophysical components of the human environment include direct construction-related disturbances and direct effects associated with an increase in activity that occurs over a period of less than 5 years. Long-term uses of the human environment include those effects occurring over a period of more than 5 years, including permanent resource loss.

The Proposed Action would not result in an intensification of land use in the surrounding area. Development of the Proposed Action would not represent a significant loss of open space. The long-term beneficial effects of implementing the Proposed Action would support the ongoing and future training missions and other readiness training and operational assignments.

### 5.5 Irreversible or Irretrievable Commitment of Resources

Irreversible and irretrievable resource commitments are related to the use of nonrenewable resources and the effects that use of these resources will have on future generations. Irreversible effects primarily result from use or destruction of a specific resource that cannot be replaced within a reasonable timeframe (e.g., energy and minerals). The irreversible and irretrievable commitments of resources that would result from implementation of the Proposed Action involve the consumption of material resources used for construction, land, and human labor resources. The use of these resources is considered to be permanent.

**Material Resources.** Material resources used for the Proposed Action include building materials, concrete and asphalt, and various material supplies. Materials that would be consumed are not in short supply, would not limit other unrelated construction activities, and would not be considered significant.

***Energy Resources.*** Energy resources used for the Proposed Action would be irretrievably lost. These include petroleum-based products such as gasoline and diesel. During runway lighting improvements, gasoline and diesel would be used for the operation of construction vehicles. Consumption of these energy resources would not place a significant demand on their availability in the region. Therefore, no significant effects would be expected.

***Human Resources.*** The use of human resources for construction is considered an irretrievable loss only in that it would preclude such personnel from engaging in other work activities. However, the use of human resources for the Proposed Action represents employment opportunities and is considered beneficial.

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## **APPENDIX A**

### **APPLICABLE LAWS, REGULATIONS, POLICIES, AND PLANNING CRITERIA**



## Appendix A

### Applicable Laws, Regulations, Policies, and Planning Criteria

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When considering the affected environment, the various physical, biological, economic, and social environmental factors must be considered. In addition to the National Environmental Policy Act (NEPA), there are other environmental laws and Executive Orders (EOs) to be considered when preparing environmental analyses. These laws are summarized below.

*NOTE: This is not a complete list of all applicable laws, regulations, policies, and planning criteria potentially applicable to documents, however, it does provide a general summary for use as a reference.*

#### Airspace Management

Airspace management procedures assist in preventing potential conflicts or accidents associated with aircraft using designated airspace in the United States, including restricted military airspace. Airspace management involves the coordination, integration, and regulation of the use of airspace. The Federal Aviation Administration (FAA) has overall responsibility for managing airspace through a system of flight rules and regulations, airspace management actions, and air traffic control (ATC) procedures. All military and civilian aircraft are subject to Federal Aviation Regulations (FARs). The FAA's *Aeronautical Information Manual* defines the operational requirements for each of the various types or classes of military and civilian airspace.

Some military services have specific guidance for airspace management. For example, airspace management in the U.S. Air Force (USAF) is guided by Air Force Instruction (AFI) 13-201, *Air Force Airspace Management*. This AFI provides guidance and procedures for developing and processing special use airspace (SUA). It covers aeronautical matters governing the efficient planning, acquisition, use, and management of airspace required to support USAF flight operations. It applies to activities that have operational or administrative responsibility for using airspace, establishes practices to decrease disturbances from flight operations that might cause adverse public reaction, and provides flying unit commanders with general guidance for dealing with local problems. The U.S. Army, per Army Regulation (AR) 95-2, *Airspace, Airfields/Heliport, Flight Activities, Air Traffic Control and Navigational Aids*, provides similar guidance and procedures for U.S. Army airspace operations.

#### Noise

Federal, state, and local governments have established noise guidelines and regulations for the purpose of protecting citizens from potential hearing damage and from various other adverse physiological, psychological, and social effects associated with noise. The Noise Control Act of 1972, as amended by the Quiet Communities Act of 1978, requires compliance with state and local noise laws and ordinances.

The U.S. Department of Housing and Urban Development (HUD), in coordination with the Department of Defense (DOD) and the FAA, has established criteria for acceptable noise levels for aircraft operations relative to various types of land use.

The U.S. Army, through AR 200-1, *Environmental Protection and Enhancement*, implements federal laws concerning environmental noise from U.S. Army activities. The USAF's Air Installation Compatible Use Zone (AICUZ) Program, (AFI 32-7063), provides guidance to air bases and local

communities in planning land uses compatible with airfield operations. The AICUZ program describes existing aircraft noise and flight safety zones on and near USAF installations.

The Federal Occupational Safety and Health Administration (OSHA) standard in 29 CFR 1910.95 sets forth the permissible sound levels and durations for workers exposed to loud noise. The requirements and parameters to monitor noise exposure and to implement hearing conservation protective measures are required by these implementing regulations. Personal protective equipment and training to use this gear is required for any employee that experiences averages of 85 decibels or higher weighted over an average 8-hour day. The only exemptions provided within 29 CFR 1910.95 to the oil and gas industry in drilling and servicing wells.

## Land Use

The term “land use” refers to real property classifications that indicate either natural conditions or the types of human activities occurring on a defined parcel of land. In many cases, land use descriptions are codified in local zoning laws. However, there is no nationally recognized convention or uniform terminology for describing land use categories.

Land use planning in the USAF is guided by *Land Use Planning Bulletin, Base Comprehensive Planning* (HQ USAF/LEEVX, August 1, 1986). This document provides for the use of 12 basic land use types found on a USAF installation. In addition, land use guidelines established by the HUD and based on findings of the Federal Interagency Committee on Noise (FICON) are used to recommend acceptable levels of noise exposure for land use. The U.S. Army uses the 12 land use types for installation land use planning, and these land use types roughly parallel those employed by municipalities in the civilian sector.

## Air Quality

The Clean Air Act (CAA) of 1970, and Amendments of 1977 and 1990, recognizes that increases in air pollution result in danger to public health and welfare. To protect and enhance the quality of the Nation’s air resources, the CAA authorizes the U.S. Environmental Protection Agency (USEPA) to set six National Ambient Air Quality Standards (NAAQS) which regulate carbon monoxide, lead, nitrogen dioxide, ozone, sulfur dioxide, and particulate matter pollution emissions. The CAA seeks to reduce or eliminate the creation of pollutants at their source, and designates this responsibility to state and local governments. States are directed to utilize financial and technical assistance and leadership from the federal government to develop implementation plans to achieve NAAQS. Geographic areas are officially designated by the USEPA as being in attainment or nonattainment for pollutants in relation to their compliance with NAAQS. Geographic regions established for air quality planning purposes are designated as Air Quality Control Regions (AQCRs). Pollutant concentration levels are measured at designated monitoring stations within the AQCR. An area with insufficient monitoring data is designated as unclassified. Section 309 of the CAA authorizes USEPA to review and comment on impact statements prepared by other agencies.

An agency should consider what effect an action might have on NAAQS due to short-term increases in air pollution during construction and long-term increases resulting from changes in traffic patterns. For actions in attainment areas, a federal agency could also be subject to USEPA’s Prevention of Significant Deterioration (PSD) regulations. These regulations apply to new major stationary sources and modifications to such sources. Although few agency facilities will actually emit pollutants, increases in pollution can result from a change in traffic patterns or volume. Section 118 of the CAA waives federal immunity from complying with the CAA and states all federal agencies will comply with all federal- and state-approved requirements.



The General Conformity Rule requires that any federal action meet the requirements of a State Implementation Plan (SIP) or Federal Implementation Plan. More specifically, CAA conformity is ensured when a federal action does not cause a new violation of the NAAQS; contribute to an increase in the frequency or severity of violations of NAAQS; or delay the timely attainment of any NAAQS, interim progress milestones, or other milestones toward achieving compliance with the NAAQS.

The General Conformity Rule applies only to actions in nonattainment or maintenance areas and considers both direct and indirect emissions. The rule applies only to federal actions that are considered “regionally significant” or where the total emissions from the action meet or exceed the *de minimis* thresholds presented in 40 Code of Federal Regulations (CFR) 93.153. An action is regionally significant when the total nonattainment pollutant emissions exceed 10 percent of the AQCR’s total emissions inventory for that nonattainment pollutant. If a federal action does not meet or exceed the *de minimis* thresholds and is not considered regionally significant, then a full Conformity Determination is not required.

On May 13, 2010, the USEPA issued the Greenhouse Gas (GHG) Tailoring Rule that sets thresholds for GHG emissions from large stationary sources. The new GHG emissions thresholds for large stationary sources define when permits under the New Source Review Prevention of PSD and Title V Operating Permit programs are required for new and existing industrial facilities. Beginning January 2, 2011, large industrial facilities that have CAA permits for non-GHG emissions must also include GHGs in these permits. Beginning July 1, 2011, all new construction or renovations that increase GHG emissions by 75,000 tons of carbon dioxide or equivalent per year or more will be required to obtain construction permits for GHG emissions. Operating permits will be needed by all sources that emit GHGs above 75,000 tons of carbon dioxide or equivalent per year beginning in July 2011.

## Health and Safety

Human health and safety relates to workers’ health and safety during demolition or construction of facilities, or applies to work conditions during operations of a facility that could expose workers to conditions that pose a health or safety risk. The federal OSHA issues standards to protect persons from such risks, and the DOD and state and local jurisdictions issue guidance to comply with these OSHA standards. Safety also can refer to safe operations of aircraft or other equipment.

AFI 91-202, *Air Force Mishap Prevention Program*, implements Air Force Policy Directive (AFPD) 91-2, *Safety Programs*, by outlining the Air Force Mishap Prevention Program. The purpose of this program is to minimize loss of USAF resources and to protect USAF personnel from occupational deaths, injuries, or illnesses by managing risks. In conjunction with the USAF Mishap Prevention Program, these standards ensure all USAF workplaces meet federal safety and health requirements. It establishes mishap prevention program requirements (including the Bird/Wildlife Aircraft Strike Hazard [BASH] Program), assigns responsibilities for program elements, and contains program management information.

U.S. Army regulations in AR 385-10, *Army Safety Program*, prescribe policy, responsibilities, and procedures to protect and preserve U.S. Army personnel and property from accidental loss or injury. AR 40-5, *Preventive Medicine*, provides for the promotion of health and the prevention of disease and injury.

EO 13045, *Protection of Children from Environmental Health Risks and Safety Risks* (April 23, 1997), directs federal agencies to make it a high priority to identify and assess environmental health risks and safety risks that may disproportionately affect children. Federal agencies must also ensure that their policies, programs, activities, and standards address disproportionate risks to children that result from environmental health or safety risks.

## Geology and Soil Resources

Recognizing that millions of acres per year of prime farmland are lost to development, Congress passed the Farmland Protection Policy Act (FPPA) to minimize the extent to which federal programs contribute to the unnecessary and irreversible conversion of farmland (7 CFR Part 658). Prime farmland is described as soils that have a combination of soil and landscape properties that make them highly suitable for cropland, such as high inherent fertility, good water-holding capacity, and deep or thick effective rooting zones, and that are not subject to periodic flooding. Under the FPPA, agencies are encouraged to conserve prime or unique farmlands when alternatives are practicable. Some activities that are not subject to the FPPA include federal permitting and licensing, projects on land already in urban development or used for water storage, construction for national defense purposes, or construction of new minor secondary structures such as a garage or storage shed.

## Water Resources

The Clean Water Act (CWA) of 1977 is an amendment to the Federal Water Pollution Control Act of 1972, is administered by USEPA, and sets the basic structure for regulating discharges of pollutants into U.S. waters. The CWA requires USEPA to establish water quality standards for specified contaminants in surface waters and forbids the discharge of pollutants from a point source into navigable waters without a National Pollutant Discharge Elimination System (NPDES) permit. NPDES permits are issued by USEPA or the appropriate state if it has assumed responsibility. Section 404 of the CWA establishes a federal program to regulate the discharge of dredge and fill material into waters of the United States. Section 404 permits are issued by the U.S. Army Corps of Engineers (USACE). Waters of the United States include interstate and intrastate lakes, rivers, streams, and wetlands that are used for commerce, recreation, industry, sources of fish, and other purposes. The objective of the CWA is to restore and maintain the chemical, physical, and biological integrity of the Nation's waters. Each agency should consider the impact on water quality from actions such as the discharge of dredge or fill material into U.S. waters from construction, or the discharge of pollutants as a result of facility occupation.

Section 303(d) of the CWA requires states and USEPA to identify waters not meeting state water quality standards and to develop Total Maximum Daily Loads (TMDLs). A TMDL is the maximum amount of a pollutant that a waterbody can receive and still be in compliance with state water quality standards. After determining TMDLs for impaired waters, states are required to identify all point and nonpoint sources of pollution in a watershed that are contributing to the impairment and to develop an implementation plan that will allocate reductions to each source to meet the state standards. The TMDL program is currently the Nation's most comprehensive attempt to restore and improve water quality. The TMDL program does not explicitly require the protection of riparian areas. However, implementation of the TMDL plans typically calls for restoration of riparian areas as one of the required management measures for achieving reductions in nonpoint source pollutant loadings.

The Coastal Zone Management Act (CZMA) of 1972 declares a national policy to preserve, protect, and develop, and, where possible, restore or enhance the resources of the Nation's coastal zone. The coastal zone refers to the coastal waters and the adjacent shorelines, including islands, transitional and intertidal areas, salt marshes, wetlands, and beaches, including the Great Lakes. The CZMA encourages states to exercise their full authority over the coastal zone through the development of land and water use programs in cooperation with federal and local governments. States may apply for grants to help develop and implement management programs to achieve wise use of the land and water resources of the coastal zone. Under Section 307, federal agency activities that affect any land or water use or natural resource of a coastal zone must be consistent to the maximum extent practicable with the enforceable policies of the state's coastal management program.

The Safe Drinking Water Act (SDWA) of 1974 establishes a federal program to monitor and increase the safety of all commercially and publicly supplied drinking water. Congress amended the SDWA in 1986, mandating dramatic changes in nationwide safeguards for drinking water and establishing new federal enforcement responsibility on the part of USEPA. The 1986 amendments to the SDWA require USEPA to establish Maximum Contaminant Levels (MCLs), Maximum Contaminant Level Goals (MCLGs), and Best Available Technology (BAT) treatment techniques for organic, inorganic, radioactive, and microbial contaminants; and turbidity. MCLGs are maximum concentrations below which no negative human health effects are known to exist. The 1996 amendments set current federal MCLs, MCLGs, and BATs for organic, inorganic, microbiological, and radiological contaminants in public drinking water supplies.

The Wild and Scenic Rivers Act of 1968 provides for a wild and scenic river system by recognizing the remarkable values of specific rivers of the Nation. These selected rivers and their immediate environment are preserved in a free-flowing condition, without dams or other construction. The policy not only protects the water quality of the selected rivers but also provides for the enjoyment of present and future generations. Any river in a free-flowing condition is eligible for inclusion, and can be authorized as such by an Act of Congress, an act of state legislature, or by the Secretary of the Interior upon the recommendation of the governor of the state(s) through which the river flows.

EO 11988, *Floodplain Management* (May 24, 1977), directs agencies to consider alternatives to avoid adverse effects and incompatible development in floodplains. An agency may locate a facility in a floodplain if the head of the agency finds there is no practicable alternative. If it is found there is no practicable alternative, the agency must minimize potential harm to the floodplain, and circulate a notice explaining why the action is to be located in the floodplain prior to taking action. Finally, new construction in a floodplain must apply accepted floodproofing and flood protection to include elevating structures above the base flood level rather than filling in land.

EO 11990, *Protection of Wetlands* (May 24, 1977), directs agencies to consider alternatives to avoid adverse effects and incompatible development in wetlands. Federal agencies are to avoid new construction in wetlands, unless the agency finds there is no practicable alternative to construction in the wetland, and the proposed construction incorporates all possible measures to limit harm to the wetland. Agencies should use economic and environmental data, agency mission statements, and any other pertinent information when deciding whether or not to build in wetlands. EO 11990 directs each agency to provide for early public review of plans for construction in wetlands.

EO 13514, *Federal Leadership in Environmental, Energy, and Economic Performance* (October 5, 2009), directed the USEPA to issue guidance on Section 438 of the Energy Independence and Security Act (EISA). The EISA establishes into law new storm water design requirements for federal construction projects that disturb a footprint of greater than 5,000 square feet of land. Under these requirements, predevelopment site hydrology must be maintained or restored to the maximum extent technically feasible with respect to temperature, rate, volume, and duration of flow. Predevelopment hydrology would be calculated and site design would incorporate storm water retention and reuse technologies to the maximum extent technically feasible. Post-construction analyses will be conducted to evaluate the effectiveness of the as-built storm water reduction features. These regulations are applicable to DOD Unified Facilities Criteria. Additional guidance is provided in the USEPA's *Technical Guidance on Implementing the Stormwater Runoff Requirements for Federal Projects under Section 438 of the Energy Independence and Security Act*.

EO 13514 also requires federal agencies to improve water efficiency and management by reducing potable water consumption intensity by 2 percent annually, or by 26 percent, by Fiscal Year (FY) 2020, relative to a FY 2007 baseline. Furthermore, federal agencies must also reduce agency industrial,

landscaping, and agricultural water consumption by 2 percent annually, or 20 percent, by FY 2020, relative to a FY 2010 baseline.

EO 13547, *Stewardship of the Ocean, Our Coasts, and the Great Lakes* (July 19, 2010), establishes a national policy to ensure the protection, maintenance, and restoration of the health of ocean, coastal, and Great Lakes ecosystems and resources; enhance the sustainability of ocean and coastal economies; preserve our maritime heritage; support sustainable uses and access; provide for adaptive management to enhance our understanding of and capacity to respond to climate change and ocean acidification; and coordinate with our national security and foreign policy interests.

## Biological Resources

The Endangered Species Act (ESA) of 1973 establishes a federal program to conserve, protect, and restore threatened and endangered plants and animals and their habitats. The ESA specifically charges federal agencies with the responsibility of using their authority to conserve threatened and endangered species. All federal agencies must ensure any action they authorize, fund, or carry out is not likely to jeopardize the continued existence of an endangered or threatened species or result in the destruction of critical habitat for these species, unless the agency has been granted an exemption. The Secretary of the Interior, using the best available scientific data, determines which species are officially endangered or threatened, and the U.S. Fish and Wildlife Service (USFWS) maintains the list. A list of federal endangered species can be obtained from the Endangered Species Division, USFWS (703-358-2171). States might also have their own lists of threatened and endangered species which can be obtained by calling the appropriate State Fish and Wildlife office. Some species also have laws specifically for their protection (e.g., Bald Eagle Protection Act).

The Migratory Bird Treaty Act (MBTA) of 1918, as amended, implements treaties and conventions between the United States, Canada, Japan, Mexico, and the former Soviet Union for the protection of migratory birds. Unless otherwise permitted by regulations, the MBTA makes it unlawful to pursue, hunt, take, capture, or kill; attempt to take, capture, or kill; possess; offer to or sell, barter, purchase, or deliver; or cause to be shipped, exported, imported, transported, carried, or received any migratory bird, part, nest, egg, or product, manufactured or not. The MBTA also makes it unlawful to ship, transport, or carry from one state, territory, or district to another; or through a foreign country, any bird, part, nest, or egg that was captured, killed, taken, shipped, transported, or carried contrary to the laws from where it was obtained; and import from Canada any bird, part, nest, or egg obtained contrary to the laws of the province from which it was obtained. The U.S. Department of the Interior has authority to arrest, with or without a warrant, a person violating the MBTA.

The Sikes Act (16 U.S.C. 670a-670o, 74 Stat. 1052), as amended, Public Law (P.L.) 86-797, approved September 15, 1960, provides for cooperation by the Departments of the Interior and Defense with state agencies in planning, development, and maintenance of fish and wildlife resources on military reservations throughout the United States. In November 1997, the Sikes Act was amended via the Sikes Act Improvement Amendment (P.L. 105-85, Division B, Title XXIX) to require the Secretary of Defense to carry out a program to provide for the conservation and rehabilitation of natural resources on military installations. To facilitate this program, the amendments require the Secretaries of the military departments to prepare and implement Integrated Natural Resources Management Plans (INRMPs) for each military installation in the United States unless the absence of significant natural resources on a particular installation makes preparation of a plan for the installation inappropriate. INRMPs must be reviewed by the USFWS and applicable states every 5 years. The National Defense Authorization Act of 2004 modified Section 4(a) (3) of the ESA to preclude the designation of critical habitat on DOD lands that are subject to an INRMP, if the Secretary of the Interior determines in writing that such a plan provides a benefit to the species for which critical habitat is proposed for designation.

EO 11514, *Protection and Enhancement of Environmental Quality* (March 5, 1970), states that the President, with assistance from the Council on Environmental Quality (CEQ), will lead a national effort to provide leadership in protecting and enhancing the environment for the purpose of sustaining and enriching human life. Federal agencies are directed to meet national environmental goals through their policies, programs, and plans. Agencies should also continually monitor and evaluate their activities to protect and enhance the quality of the environment. Consistent with NEPA, agencies are directed to share information about existing or potential environmental problems with all interested parties, including the public, in order to obtain their views.

EO 13112, *Invasive Species* (February 3, 1999), provides direction to use relevant programs and authorities to prevent introduction of invasive species, detect and respond rapidly to control populations of invasive species, monitor invasive species populations, provide restoration of native species and habitat conditions in ecosystems that have been invaded, conduct research on invasive species and develop technologies to prevent introduction and provide for environmentally sound control of invasive species, and promote public education on invasive species with means to address them. EO 13112 was created to minimize the economic, ecological, and human health impacts that invasive species cause.

EO 13186, *Conservation of Migratory Birds* (January 10, 2001), creates a more comprehensive strategy for the conservation of migratory birds by the federal government. EO 13186 provides a specific framework for the federal government's compliance with its treaty obligations to Canada, Mexico, Russia, and Japan. EO 13186 provides broad guidelines on conservation responsibilities and requires the development of more detailed guidance in a Memorandum of Understanding (MOU). EO 13186 will be coordinated and implemented by the USFWS. The MOU will outline how federal agencies will promote conservation of migratory birds. EO 13186 requires the support of various conservation planning efforts already in progress; incorporation of bird conservation considerations into agency planning, including NEPA analyses; and reporting annually on the level of take of migratory birds.

## Cultural Resources

The American Indian Religious Freedom Act of 1978 and Amendments of 1994 recognize that freedom of religion for all people is an inherent right, and traditional American Indian religions are an indispensable and irreplaceable part of Indian life. It also recognized the lack of federal policy on this issue and made it the policy of the United States to protect and preserve the inherent right of religious freedom for Native Americans. The 1994 Amendments provide clear legal protection for the religious use of peyote cactus as a religious sacrament. Federal agencies are responsible for evaluating their actions and policies to determine if changes should be made to protect and preserve the religious cultural rights and practices of Native Americans. These evaluations must be made in consultation with native traditional religious leaders.

The Archaeological Resource Protection Act (ARPA) of 1979 protects archaeological resources on public and American Indian lands. It provides felony-level penalties for the unauthorized excavation, removal, damage, alteration, or defacement of any archaeological resource, defined as material remains of past human life or activities which are at least 100 years old. Before archaeological resources are excavated or removed from public lands, the federal land manager must issue a permit detailing the time, scope, location, and specific purpose of the proposed work. ARPA also fosters the exchange of information about archaeological resources between governmental agencies, the professional archaeological community, and private individuals. ARPA is implemented by regulations found in 43 CFR Part 7.

The National Historic Preservation Act (NHPA) of 1966 sets forth national policy to identify and preserve properties of state, local, and national significance. The NHPA establishes the Advisory Council on Historic Preservation (ACHP), State Historic Preservation Officers (SHPOs), and the National Register of

Historic Places (NRHP). The ACHP advises the President, Congress, and federal agencies on historic preservation issues. Section 106 of the NHPA directs federal agencies to take into account effects of their undertakings (actions and authorizations) on properties included in or eligible for the NRHP. Section 110 sets inventory, nomination, protection, and preservation responsibilities for federally owned cultural properties. Section 106 of the act is implemented by regulations of the ACHP, 36 CFR Part 800. Agencies should coordinate studies and documents prepared under Section 106 with NEPA where appropriate. However, NEPA and NHPA are separate statutes and compliance with one does not constitute compliance with the other. For example, actions which qualify for a categorical exclusion under NEPA might still require Section 106 review under NHPA. It is the responsibility of the agency official to identify properties in the area of potential effects, and whether they are included or eligible for inclusion in the NRHP. Section 110 of the NHPA requires federal agencies to identify, evaluate, and nominate historic property under agency control to the NRHP.

The Native American Graves Protection and Repatriation Act (NAGPRA) of 1990 establishes rights of American Indian tribes to claim ownership of certain “cultural items,” defined as Native American human remains, funerary objects, sacred objects, and objects of cultural patrimony, held or controlled by federal agencies. Cultural items discovered on federal or tribal lands are, in order of primacy, the property of lineal descendants, if these can be determined, and then the tribe owning the land where the items were discovered or the tribe with the closest cultural affiliation with the items. Discoveries of cultural items on federal or tribal land must be reported to the appropriate American Indian tribe and the federal agency with jurisdiction over the land. If the discovery is made as a result of a land use, activity in the area must stop and the items must be protected pending the outcome of consultation with the affiliated tribe.

EO 11593, *Protection and Enhancement of the Cultural Environment* (May 13, 1971), directs the federal government to provide leadership in the preservation, restoration, and maintenance of the historic and cultural environment. Federal agencies are required to locate and evaluate all federal sites under their jurisdiction or control which might qualify for listing on the NRHP. Agencies must allow the ACHP to comment on the alteration, demolition, sale, or transfer of property which is likely to meet the criteria for listing as determined by the Secretary of the Interior in consultation with the SHPO. Agencies must also initiate procedures to maintain federally owned sites listed on the NRHP.

EO 13007, *Indian Sacred Sites* (May 24, 1996), provides that agencies managing federal lands, to the extent practicable, permitted by law, and not inconsistent with agency functions, shall accommodate American Indian religious practitioners’ access to and ceremonial use of American Indian sacred sites, shall avoid adversely affecting the physical integrity of such sites, and shall maintain the confidentiality of such sites. Federal agencies are responsible for informing tribes of proposed actions that could restrict future access to or ceremonial use of, or adversely affect the physical integrity of, sacred sites.

EO 13175, *Consultation and Coordination with Indian Tribal Governments* (November 6, 2000), was issued to provide for regular and meaningful consultation and collaboration with Native American tribal officials in the development of federal policies that have tribal implications, and to strengthen the United States government-to-government relationships with Native American tribes. EO 13175 recognizes the following fundamental principles: Native American tribes exercise inherent sovereignty over their lands and members, the United States government has a unique trust relationship with Native American tribes and deals with them on a government-to-government basis, and Native American tribes have the right to self-government and self-determination.

EO 13287, *Preserve America* (March 3, 2003), orders federal agencies to take a leadership role in protection, enhancement, and contemporary use of historic properties owned by the federal government, and promote intergovernmental cooperation and partnerships for preservation and use of historic

properties. EO 13287 established new accountability for agencies with respect to inventories and stewardship.

## Socioeconomics and Environmental Justice

EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations* (February 11, 1994), directs federal agencies to make achieving environmental justice part of their mission. Agencies must identify and address the adverse human health or environmental effects that its activities have on minority and low-income populations, and develop agencywide environmental justice strategies. The strategy must list “programs, policies, planning and public participation processes, enforcement, and/or rulemakings related to human health or the environment that should be revised to promote enforcement of all health and environmental statutes in areas with minority populations and low-income populations, ensure greater public participation, improve research and data collection relating to the health of and environment of minority populations and low-income populations, and identify differential patterns of consumption of natural resources among minority populations and low-income populations.” A copy of the strategy and progress reports must be provided to the Federal Working Group on Environmental Justice. Responsibility for compliance with EO 12898 is with each federal agency.

## Hazardous Materials and Waste

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980 authorizes USEPA to respond to spills and other releases of hazardous substances to the environment, and authorizes the National Oil and Hazardous Substances Pollution Contingency Plan. CERCLA also provides a federal “Superfund” to respond to emergencies immediately. Although the “Superfund” provides funds for cleanup of sites where potentially responsible parties cannot be identified, USEPA is authorized to recover funds through damages collected from responsible parties. This funding process places the economic burden for cleanup on polluters. Section 120(h) of CERCLA requires federal agencies to notify prospective buyers of contaminated federal properties about the type, quantity, and location of hazardous substances that would be present.

The Pollution Prevention Act (PPA) of 1990 encourages manufacturers to avoid the generation of pollution by modifying equipment and processes; redesigning products; substituting raw materials; and making improvements in management techniques, training, and inventory control. Consistent with pollution prevention principles, EO 13423, *Strengthening Federal Environmental, Energy, and Transportation Management* (January 24, 2007 [revoking EO 13148]), sets a goal for all federal agencies to promote environmental practices, including acquisition of biobased, environmentally preferable, energy-efficient, water-efficient, and recycled-content products; and use of paper of at least 30 percent post-consumer fiber content. In addition, EO 13423 sets a goal that requires federal agencies to ensure that they reduce the quantity of toxic and hazardous chemicals and materials acquired, used, or disposed of; increase diversion of solid waste, as appropriate; and maintain cost-effective waste prevention and recycling programs at their facilities. Additionally, in *Federal Register* Volume 58 Number 18 (January 29, 1993), CEQ provides guidance to federal agencies on how to “incorporate pollution prevention principles, techniques, and mechanisms into their planning and decisionmaking processes and to evaluate and report those efforts, as appropriate, in documents pursuant to NEPA.”

The Resource Conservation and Recovery Act (RCRA) of 1976 is an amendment to the Solid Waste Disposal Act. RCRA authorizes USEPA to provide for “cradle-to-grave” management of hazardous waste and sets a framework for the management of nonhazardous municipal solid waste. Under RCRA, hazardous waste is controlled from generation to disposal through tracking and permitting systems, and restrictions and controls on the placement of waste on or into the land. Under RCRA, a waste is defined

as hazardous if it is ignitable, corrosive, reactive, toxic, or listed by USEPA as being hazardous. With the Hazardous and Solid Waste Amendments (HSWA) of 1984, Congress targeted stricter standards for waste disposal and encouraged pollution prevention by prohibiting the land disposal of particular wastes. The HSWA strengthens control of both hazardous and nonhazardous waste and emphasizes the prevention of pollution of groundwater.

The Superfund Amendments and Reauthorization Act (SARA) of 1986 mandates strong clean-up standards and authorizes USEPA to use a variety of incentives to encourage settlements. Title III of SARA authorizes the Emergency Planning and Community Right to Know Act (EPCRA), which requires facility operators with “hazardous substances” or “extremely hazardous substances” to prepare comprehensive emergency plans and to report accidental releases. If a federal agency acquires a contaminated site, it can be held liable for cleanup as the property owner/operator. A federal agency can also incur liability if it leases a property, as the courts have found lessees liable as “owners.” However, if the agency exercises due diligence by conducting a Phase I Environmental Site Assessment, it can claim the “innocent purchaser” defense under CERCLA. According to Title 42 United States Code (U.S.C.) 9601(35), the current owner/operator must show it undertook “all appropriate inquiry into the previous ownership and uses of the property consistent with good commercial or customary practice” before buying the property to use this defense.

The Toxic Substance Control Act (TSCA) of 1976 consists of four titles. Title I established requirements and authorities to identify and control toxic chemical hazards to human health and the environment. TSCA authorized USEPA to gather information on chemical risks, require companies to test chemicals for toxic effects, and regulate chemicals with unreasonable risk. TSCA also singled out polychlorinated biphenyls (PCBs) for regulation, and, as a result, PCBs are being phased out. PCBs are persistent when released into the environment and accumulate in the tissues of living organisms. They have been shown to cause adverse health effects on laboratory animals and could cause adverse health effects in humans. TSCA and its regulations govern the manufacture, processing, distribution, use, marking, storage, disposal, clean-up, and release reporting requirements for numerous chemicals like PCBs. TSCA Title II provides statutory framework for “Asbestos Hazard Emergency Response,” which applies only to schools. TSCA Title III, “Indoor Radon Abatement,” states indoor air in buildings of the United States should be as free of radon as the outside ambient air. Federal agencies are required to conduct studies on the extent of radon contamination in buildings they own. TSCA Title IV, “Lead Exposure Reduction,” directs federal agencies to “conduct a comprehensive program to promote safe, effective, and affordable monitoring, detection, and abatement of lead-based paint and other lead exposure hazards.” Further, any federal agency having jurisdiction over a property or facility must comply with all federal, state, interstate, and local requirements concerning lead-based paint.

## Energy

The Energy Policy Act (EPAct) of 2005, P.L. 109-58, amended portions of the National Energy Conservation Policy Act and established energy management goals for federal facilities and fleets. Section 109 of EPAct directs that new federal buildings (commercial or residential) be designed 30 percent below American Society of Heating, Refrigerating, and Air-Conditioning Engineers standards or the International Energy Code. Section 109 also includes the application of sustainable design principles for new buildings and requires federal agencies to identify new buildings in their budget requests that meet or exceed the standards. Section 203 of EPAct requires that all federal agencies’ renewable electricity consumption meet or exceed 3 percent from FY 2007 through FY 2009, with increases to at least 5 percent in FY 2010 through FY 2012 and 7.5 percent in FY 2013 and thereafter. Section 203 also establishes a double credit bonus for federal agencies if renewable electricity is produced onsite at a federal facility, on federal lands, or on Native American lands. Section 204 of EPAct establishes a photovoltaic energy commercialization program for federal buildings.



EO 13514, *Federal Leadership In Environmental, Energy, And Economic Performance* (dated October 5, 2009), directs federal agencies to improve water use efficiency and management; implement high performance sustainable federal building design, construction, operation and management; and advance regional and local integrated planning by identifying and analyzing impacts from energy usage and alternative energy sources. EO 13514 also directs federal agencies to prepare and implement a Strategic Sustainability Performance Plan to manage its greenhouse gas emissions, water use, pollution prevention, regional development and transportation planning, sustainable building design and promote sustainability in its acquisition of goods and services. Section 2(g) requires new construction, major renovation, or repair and alteration of buildings to comply with the Guiding Principles for Federal Leadership in High Performance and Sustainable Buildings. The CEQ regulations at 40 CFR 1502.16(e) directs agencies to consider the energy requirements and conservation potential of various alternatives and environmental protection measures.

Section 503(b) of EO 13423, *Strengthening Federal Environmental, Energy, and Transportation Management*, instructs federal agencies to conduct their environmental, transportation, and energy-related activities under the law in support of their respective missions in an environmentally, economically, and fiscally sound, integrated, continuously improving, efficient, and sustainable manner. EO 13423 sets goals in energy efficiency, acquisition, renewable energy, toxic chemical reduction, recycling, sustainable buildings, electronics stewardship, fleets, and water conservation. Sustainable design measures such as the use of “green” technology (e.g., photovoltaic panels, solar collection, heat recovery systems, wind turbines, green roofs, and habitat-oriented storm water management) would be incorporated where practicable.

## Runway Lighting and Facilities Standards

MIL-STD 3007 prescribes the Unified Facilities Criteria (UFC) standards, which provides a master set of planning, design, construction, sustainment, restoration, and modernization criteria as standard guidelines for worldwide construction activities of participating U.S. federal agencies. These standards apply to all departments throughout the DOD. Three particular UFC directives are related to the Proposed Action.

First, UFC 3-535-01 *Visual Air Navigation Facilities* combines U.S. Army and USAF criteria to address runway lighting systems. This directive provides information on tests and inspections of new systems prior to any maintenance services for power, control, and monitoring of airfield ground lighting. UFC 3-535-01 sets forth all standardized specifications for lights, signs, symbols, and other visual aid devices to ensure safety. All proposed actions associated with new installation or rehabilitation of runway lighting systems must comply with UFC 3-535-01. Consultation with the guidance ensures that designers understand all design requirements for lighting systems.

UFC 3-260-01 *Airfield and Heliport Planning and Design* sets forth the criteria for safe layout of DOD airfields, landing zones, heliports and helipads, and related permanent facilities, and the associated navigational airspace. The criteria require designers to consult this manual to identify airspace obstructions and to coordinate internally with airspace safety managers and safety officers prior to formal coordination with the FAA. As relevant to the Proposed Action, UFC 3-260-01 sets forth required clear zones for visibility of lighting structures, allows for nighttime flood lighting, and identifies lighting for airfield and navigational requirements.

Finally, UFC 3-600-01 *Fire Protection Engineering for Facilities* establishes minimum requirements for protection of life, mission, and property (building and contents) for DOD facilities. The directive also addresses fire safety during construction and requires that construction activities comply with installation fire regulations.

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## **APPENDIX B**

### **INTERAGENCY AND INTERGOVERNMENTAL COORDINATION FOR ENVIRONMENTAL PLANNING (IICEP) AND PUBLIC INVOLVEMENT**



## Appendix B

### Interagency and Intergovernmental Coordination for Environmental Planning (IICEP) and Public Involvement

The public review process provides an opportunity for the public to comment on federal actions addressed in NEPA documents. A public notice was placed in the *Northwest Florida Daily News* announcing the availability of the Draft EA and FONSI/FONPA for public review and comment. A copy of the proof of publication and public notification as it ran in the newspaper on March 2, 2013 are shown below. No public comments on the Draft EA and Draft FONSI/FONPA were received over the 45-day comment period. See closing statement from Eglin AFB's Public Information Specialist, Mike Spaits on page B-3.

Northwest Florida  
**Daily News**  
Published Daily  
Fort Walton Beach, Florida  
Distributed in Okaloosa, Santa Rosa & Walton Counties

State of Florida, County of Okaloosa

Before the undersigned authorized personally appeared Marilyn Witte  
who on oath says that (s)he is Legal Advertising Clerk  
of the Northwest Florida Daily News,  
a daily newspaper published at Fort Walton Beach, in Okaloosa County, Florida;  
that the attached copy of advertisement, being a Legal 2093553  
in the matter of Notice  
Repair of Approach Lighting System  
in the Okaloosa County Court, was published in said newspaper in the issues of  
March 2, 2013

Affiant further says that the said Northwest Florida Daily News is a newspaper published at Fort Walton Beach, in said Okaloosa County, Florida, and that the said newspaper has heretofore been continuously published in said Okaloosa County, Florida, each day, and has been entered as second class mail matter at the post office in Fort Walton Beach, in said Okaloosa County, Florida, for a period of one year next preceding the first publication of the attached copy of advertisement; and affiant further says that (s)he has neither paid nor promised any person, firm or corporation any discount, rebate, commission or refund for the purpose of securing this advertisement for publication in the said newspaper.

STATE OF FLORIDA  
COUNTY OF OKALOOSA

Subscribed and sworn to (or affirmed) before me this 4 March 2013  
(Date)  
by Marilyn Witte, who is/are personally known to me or  
has/have produced Personally Known as identification.  
(Type of identification)

Eleanor Hynes Notary Public, Commission No. \_\_\_\_\_  
(Signature) (Name of Notary typed, printed or stamped)



## PUBLIC NOTIFICATION

In compliance with the National Environmental Policy Act, Eglin AFB announces the availability of a Draft Environmental Assessment and Draft Finding of No Significant Impact/Finding of No Practicable Alternative for the proposed Repair of Approach Lighting System at the north end of Runway 01/19 at Eglin AFB, Fla., for public review and comment.

The Proposed Action addressed in this EA includes repair of the approach lighting system at the north end of Runway 01/19 on Eglin AFB. Based on the age and condition of the existing runway approach lighting structures, repairing the approach lighting system is required to provide a safe platform for maintenance and to bring the system into compliance, to the maximum extent feasible with all federal, state and local regulations/codes, and environmental and aviation requirements.

Your comments on this Draft EA are requested. Letters and other written or oral comments provided will be addressed and may be published in the Final EA. Any personal information provided, including private addresses, will be used only to identify your desire to make a statement during the public comment period or to compile a mailing list to fulfill requests for copies of the Final EA or associated documents. However, only the names and respective comments of respondent individuals will be disclosed; personal home addresses and phone numbers will not be published in the Final EA.

The Draft Environmental Assessment and Finding of No Significant Impact/Finding of No Practicable Alternative are available on the web at [www.eglin.af.mil/eglindocuments](http://www.eglin.af.mil/eglindocuments), asg from Mar. 2 until April 14, 2013. For more information, contact Mike Spalts, 96th Test Wing Environmental Public Affairs, 101 W. D Ave., Ste. 238, Eglin AFB, Florida 32542 or email: [mike.spalts@eglin.af.mil](mailto:mike.spalts@eglin.af.mil). Tel: (850) 882-2836; Fax: (850) 882-3761.

For more information or to comment on the Proposed Action, contact Mike Spalts using the contact information given above. Comments must be received by April 17, 2013.

**Response to Comments for Repair of Approach Lighting System at the north end of Runway  
01/19 at Eglin AFB Draft Environmental Assessment**

A public notice was published in the *Northwest Florida Daily News* on Mar. 2, 2013 to disclose completion of the Draft EA, and Draft FONSI/FONPA, selection of the preferred alternative, and request for comments during the 45-day pre-decisional comment period.

The 45-day comment period ended on Apr. 14<sup>th</sup>, with the comments required to this office not later than Apr. 17<sup>th</sup>, 2013. No comments were received during this period.

//Signed//

Mike Spaits

Public Information Specialist



DEPARTMENT OF THE AIR FORCE  
HEADQUARTERS 96TH TEST WING (AFMC)  
EGLIN AIR FORCE BASE FLORIDA

February 26, 2013

Mr. Thomas L. Chavers  
Department of the Air Force  
96 CEG/CEVSP  
501 DeLeon Street, Suite 101  
Eglin Air Force Base, FL 32542-5133

Lauren P. Milligan, Environmental Manager  
Florida State Clearinghouse  
Florida Department of Environmental Protection  
3900 Commonwealth Blvd, M.S. 47  
Tallahassee, FL 32399-3000

Dear Ms. Milligan:

We request a Florida State Clearinghouse coordinated review of the attached Draft Environmental Assessment (EA), Appendices, and Finding of No Significant Impact (FONSI)/Finding of No Practicable Alternative (FONPA) for the proposed Repair of Approach Lighting System at the North End of Runway 01/19 at Eglin Air Force Base, Florida.

The Proposed Action addressed in this EA includes repair of the approach lighting system at the north end of Runway 01/19 on Eglin Air Force Base, Florida. Based on the age and condition of the existing runway approach lighting structures, repairing the approach lighting system at the north end of Runway 01/19 is required to provide a safe platform for maintenance and to bring the system into compliance, to the maximum extent feasible with all federal, state, and local regulations/codes, and environmental and aviation requirements.

I appreciate you taking the time to conduct a coordinated review of the proposed project. Should you have any questions regarding this letter, please contact me at (850) 882-0143.

THOMAS L. CHAVERS, GS-13  
Chief, Environmental Analysis Section

Attachments:

- 1) Draft Environmental Assessment
- 2) Draft Finding of No Significant Impact/Finding of No Practicable Alternative



**Rogers, Melinda A Civ USAF AFMC 96 CEG/CEVSP**

---

**From:** Milligan, Lauren <Lauren.Milligan@dep.state.fl.us>  
**Sent:** Tuesday, March 05, 2013 4:34 PM  
**To:** Rogers, Melinda A Civ USAF AFMC 96 CEG/CEVSP  
**Cc:** Chavers, Thomas L Civ USAF AFMC 96 CEG/CEVSP; Jordan, Teresa A CIV USAF AFMC 96 CEG/CEVSP; Knight, Kelly E CTR USAF AFMC 96 CEG/CEVSNW  
**Subject:** RE: 4(d) Rule for Potential Take for Runway 19 Approach Lighting - State Clearance Letter

Ms. Melinda A. Rogers  
Department of the Air Force  
96 CEG/CEVSP  
501 DeLeon Street, Suite 101  
Eglin AFB, FL 32542-5133

RE: Department of the Air Force – Draft Environmental Assessment for FTFA 07-1174, Repair Approach Lighting System at the North End of Runway 01/19 at Eglin Air Force Base – Okaloosa County, Florida.  
SAI # FL201303056517C

Dear Mindy:

Florida State Clearinghouse staff has reviewed the referenced Draft Environmental Assessment (EA) under the following authorities: Presidential Executive Order 12372; § 403.061(42), *Florida Statutes*; the Coastal Zone Management Act, 16 U.S.C. §§ 1451-1464, as amended; and the National Environmental Policy Act, 42 U.S.C. §§ 4321-4347, as amended.

As noted in the draft EA, replacement of the lighting system structures will require the issuance of an Environmental Resource Permit (ERP) by the Department's Northwest District Office in Pensacola. Further inquiries concerning the state's permitting requirements should be directed to ERP staff in the Northwest District Office, Submerged Lands and Environmental Resources Program at (850) 595-0574.

Based on the information contained in the draft EA and long-term environmental benefits of replacing the creosote piles, the state has determined that, at this stage, the proposed federal activity is consistent with the Florida Coastal Management Program (FCMP). The state's continued concurrence will be based on the activity's compliance with FCMP authorities, including federal and state monitoring of the activity to ensure its continued conformance, and the adequate resolution of any issues identified during subsequent regulatory reviews. The state's final concurrence of the project's consistency with the FCMP will be determined during the environmental permitting process, in accordance with Section 373.428, *Florida Statutes*.

If you have any questions regarding this message or the state intergovernmental review process, please don't hesitate to contact me at (850) 245-2170 or [Lauren.Milligan@dep.state.fl.us](mailto:Lauren.Milligan@dep.state.fl.us). Thank you.

Yours sincerely,

*Lauren P. Milligan*

Lauren P. Milligan, Environmental Manager  
Florida State Clearinghouse  
Florida Department of Environmental Protection  
3900 Commonwealth Blvd, M.S. 47

Tallahassee, FL 32399-3000  
ph. (850) 245-2170  
fax (850) 245-2190

*Please take a few minutes to share your comments on the service you received from the department by clicking on this link: [DEP Customer Survey](#).*

**From:** Rogers, Melinda A Civ USAF AFMC 96 CEG/CEVSP [mailto:Melinda.Rogers2@eglin.af.mil]

**Sent:** Tuesday, February 26, 2013 12:32 PM

**To:** Milligan, Lauren

**Cc:** Jordan, Teresa A CIV USAF AFMC 96 CEG/CEVSP

**Subject:** RE: 4(d) Rule for Potential Take for Runway 19 Approach Lighting

Dear Ms. Lauren,

Attached is the signed transmittal letter.

Thanks again!

Sincerely,  
Mindy

**From:** Milligan, Lauren [mailto:Lauren.Milligan@dep.state.fl.us]  
**Sent:** Friday, April 19, 2013 3:12 PM  
**To:** 'Robydek, Amanda CTR USAF AFMC 96 CEG/CEVSN'  
**Cc:** Preston, Jeremy R Civ USAF AFMC 96 CEG/CEVSNW; Hagedorn, Bruce W GS12 USAF AFMC 96 CEG/CEVSNW; Garrett, Michael  
**Subject:** RE: FTFA 07-1174, REPAIR APPROACH LIGHTING SYSTEM

Hi Amanda:

Thanks for the update. No need to redo the state's CZMA consistency review in this case. Just FYI – modified federal designations do not necessarily affect the state's review of the proposal for concurrence with enforceable policies in the Florida Coastal Management Program.

Have a great weekend!

Lauren

Lauren P. Milligan, Environmental Manager  
Florida State Clearinghouse  
Florida Department of Environmental Protection  
3900 Commonwealth Blvd, M.S. 47  
Tallahassee, FL 32399-3000  
ph. (850) 245-2170  
fax (850) 245-2190

*Please take a few minutes to share your comments on the service you received from the department by clicking on this link: [DEP Customer Survey](#).*

**From:** Robydek, Amanda CTR USAF AFMC 96 CEG/CEVSN [mailto:Amanda.Robydek.ctr@eglin.af.mil]  
**Sent:** Friday, April 19, 2013 3:49 PM  
**To:** Milligan, Lauren  
**Cc:** Preston, Jeremy R Civ USAF AFMC 96 CEG/CEVSNW; Hagedorn, Bruce W GS12 USAF AFMC 96 CEG/CEVSNW; [nick.garrett@hdrinc.com](mailto:nick.garrett@hdrinc.com)  
**Subject:** FW: FTFA 07-1174, REPAIR APPROACH LIGHTING SYSTEM

Hi Lauren,

I had a question for you concerning the Repair Approach Lighting System at Runway 01/19 on Eglin AFB. As you can read in the email chain below, after further analysis of the proposed action based on new information received, it was determined that this project didn't qualify under the 4(d) Exemption Rule for the Okaloosa darter so we changed our ESA determination to "no effect" based on the fact that no darters have been identified in Tom's Creek and thus would not be impacted. Based on this change, do we need to re-do the Consistency Determination that you already reviewed and provided concurrence on?

Appreciate your guidance on this!  
Thank you!  
Amanda

Amanda Robydek 1 SAIC  
Environmental Scientist  
Eglin AFB Natural Resources Section  
107 Highway 85 North 1 Niceville, FL 32578  
email: [amanda.robbydek.ctr@eglin.af.mil](mailto:amanda.robbydek.ctr@eglin.af.mil)

## **“No Effect” Determination for the Okaloosa Darter**



DEPARTMENT OF THE AIR FORCE  
HEADQUARTERS 96TH TEST WING (AFMC)  
EGLIN AIR FORCE BASE FLORIDA

Mr. Thomas L. Chavers  
Chief, Eglin Natural Resources  
501 De Leon Street, Suite 101  
Eglin AFB FL 32542-5133

APR 29 2013

Dr. Donald Imm  
U.S. Fish and Wildlife Service  
1601 Balboa Avenue  
Panama City, FL 32405

Dear Dr. Imm:

The following information is being submitted to the U.S. Fish and Wildlife Service (USFWS) to fulfill requirements under Section 7 of the Endangered Species Act (ESA). This biological assessment addresses the potential for impacts to the Okaloosa darter associated with the replacement of the approach lighting system and vegetation removal at the north end of Runway 01/19 on Eglin Air Force Base (AFB), Florida.

### **Description of the Proposed Action**

Eglin AFB proposes to replace the existing approach runway lighting system at the north end of Runway 01/19. This action is required to provide a safe platform for maintenance and to bring the system into compliance, to the maximum extent feasible, with all federal, state, and local regulations and codes, as well as environmental and aviation requirements. In accordance with UFC 3-535-01 an overall lighting system length of 3,000 feet extending from the runway threshold into the approach zone is required. However, if terrain or other local conditions prevent a full-length installation, the system may be shortened to not less than 2,400 feet. Currently, Runway 01/19 is operating under a waiver (Waiver Number PWO5-0910-EGL) for a 1,500-foot system that matches the existing site conditions based on gradient (i.e., terrain), and because the land beyond 1,500 feet does not belong to the U.S. Air Force. In addition, to comply with UFC 3-535-01, Section 3-1.4.3, Obstruction Clearances, selective vegetative clearing will be required in the approach zone within a 200-foot-wide area as measured from each side of the runway centerline and 200-feet from the runway threshold and before the start of the approach zone. In order to remain in compliance with the above requirements, the Proposed Action would include the following actions:



- A temporary structure would be constructed across the stream (Tom's Creek) to allow for access during runway lighting improvements. Mats or other ground-level access would be used in wetland areas.
- The entire system would be demolished. Up to 16 pilings would be removed from the stream channel.
- All piles located in the wetlands or floodplains would be cut at the mudline.
- New concrete or steel piles would be installed and a rigid platform would be constructed above the water line. Based on 95 % design plans, up to 25 pilings would be placed in the stream
- A frangible or semi-frangible lighting structure would be mounted to the platform. This structure would be mounted so it can be lowered for electricians to safely change the bulbs.
- The walkway would be replaced with steel or concrete piles and non-combustible construction.
- Selective vegetative clearing would occur in compliance with UFC 3-535-01, Section 3-1.4.3, Obstruction Clearances.
  - Coordination with Eglin's onsite USFWS staff would be required during vegetation removal
  - Within 30 meters of the edge of the stream, only hand-cutting of vegetation would be allowed
  - Vegetation cannot be de-rooted/de-stumped
  - Trees would be selectively cut within the approach plain
  - USFWS would use felled trees for rehabilitation purposes for the stream channel

#### **Biological Information**

##### **Okaloosa Darter**

The Okaloosa darter (*Etheostoma okaloosae*) is a small state and federally threatened fish. Spawning occurs from March to October, with the greatest amount of activity taking place during April. The entire global population of this species is found in the tributaries and main channels of Toms, Turkey, Mill, Swift, East Turkey, and Rocky Creeks, which drain into two bayous (Boggy Bayou and Rocky Bayou) of Choctawhatchee Bay. These seepage streams have persistent discharge of clear, sand-filtered water through sandy channels, woody debris, and vegetation beds. The Eglin Range contains 90 percent of the 457-square kilometer (176 square mile) drainage area.

The darter was downlisted from endangered to threatened in March of 2011. Eglin AFB is conducting the following actions to manage this federally protected species:

- Protecting in-stream flows and historical habitat through management plans, conservation agreements, easements, and/or acquisitions;
- Implementing an effective habitat restoration program to control erosion from roads, clay pits, and open ranges;
- Demonstrating that the Okaloosa darter population is stable or increasing and that the range of the Okaloosa darter has not decreased at all historical monitoring sites; and
- Ensuring that no foreseeable threats exist that would impact the survival of the species.

#### **Determination of Impacts**

##### **Okaloosa Darter**

The Proposed Action would impact an area with the potential for darter occurrence. Creosote-treated piles currently in the stream channel would be removed with a crane or similar piece of equipment using a strap or grapple type method and simply pulled straight up and out of the substrate. Removal with a crane would result in substrate compaction and subsequent increased turbidity. Potential effects from this action would be temporary and localized in nature; however this action should provide a long term beneficial effect for the species resulting from removal of the creosote piles from within the stream channel. The total number of steel or concrete pilings to be placed in the stream channel would be higher than what is currently there and would create more obstructions in the channel. However, implementation of best management practices (BMPs) described in Chapter 4 of the Environmental Assessment would further reduce the potential for impacts to the stream and riparian area. In recent years, USFWS biologists have conducted multiple surveys of this segment of Tom's Creek, specifically to document darter occurrence. The latest survey was conducted on April 25, 2013 and encompassed an area approximately 50 meters below and above the site where the light structures cross the stream. As a result of these survey efforts, no darters have been documented in this segment of Tom's Creek, which confirms that darters currently do not inhabit the area that would be impacted by the proposed action.

Due to the minimal potential for direct impacts to the Okaloosa darter from the removal of creosote-treated piles and placement of up to 25 concrete or steel piles in the stream channel, Eglin NRS has determined that the Proposed Action would have **no effect on the Okaloosa darter**.

#### **Conclusion**

Eglin NRS has determined that the replacement of the approach lighting system and associated tree removal at the north end of Runway 01/19 would have **no effect on the Okaloosa darter**, provided that the mitigation measures and BMPs in Chapter 4 of the Environmental Assessment are implemented to reduce impacts to the stream and riparian area from the proposed activities. The USFWS will be notified if any of the actions are modified. If further impact to the Okaloosa darter or its habitat occurs beyond what has been considered, all operations will cease and the Service will be notified. Any

modifications or additional conditions resulting from correspondence with the Service will be implemented.

If you have any questions regarding this biological assessment or any of the proposed activities, please do not hesitate to contact either Mr. Bruce Hagedorn (850) 882-8421 or myself at (850) 882-8391.

Sincerely,

A handwritten signature in cursive script, appearing to read "Th L Chavers".


THOMAS L. CHAVERS, GS-13  
Chief, Natural Resources Section

**NO EFFECT LETTER REGARDING**

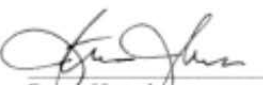
IMPACTS TO FEDERALLY LISTED SPECIES RESULTING FROM  
THE REPLACEMENT OF THE APPROACH LIGHTING SYSTEM  
AND VEGETATION REMOVAL AT THE NORTH END OF  
RUNWAY 01/19 ON EGLIN AIR FORCE BASE, FLORIDA

Prepared by:   
Amanda Robydek  
Environmental Scientist, SAIC  
Eglin Natural Resources Section

4/29/2013  
Date

Reviewed by:   
Jeremy Preston  
Endangered Species Biologist  
Eglin Natural Resources Section

4/29/2013  
Date

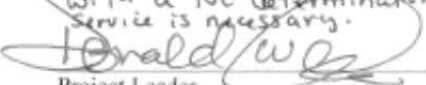
 ACTING  
Bruce Hagedorn  
Chief, Wildlife Element  
Eglin Natural Resources Section

4/29/2013  
Date

  
Thomas L. Chavers  
Chief, Eglin Natural Resources Section

4/29/2013  
Date

USFWS CONCURRENCE: Thanks for coordination on this project.  
With a NE determination, no concurrence from the  
Service is necessary.

  
Project Leader  
U.S. Fish and Wildlife Service  
Panama City, FL

5/1/2013  
Date

FWS Log No. 04EF 3060-2013-I-0009 0167

Runway 01/19 - replacement poles, lights, veg. clearing  
-PK



## **APPENDIX C**

### **FEDERAL AGENCY COASTAL ZONE MANAGEMENT ACT (CZMA) CONSISTENCY DETERMINATION**



# Appendix C

## Federal Agency Coastal Zone Management Act (CZMA) Consistency Determination

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### Introduction

This document provides the State of Florida with the U.S. Air Force's Consistency Determination under CZMA Section 307 and 15 C.F.R. Part 930 sub-part C. The information in this Consistency Determination is provided pursuant to 15 C.F.R. Section 930.39 and Section 307 of the Coastal Zone Management Act, 16 U.S.C. § 1456, as amended, and its implementing regulations at 15 C.F.R. Part 930.

This federal consistency determination addresses the Proposed Action to replace the approach lighting system at the north end of Runway 01/19 on Eglin Air Force Base (AFB), Florida (**Figure 1**).

### Proposed Federal Agency Action:

The Proposed Action is for the replacement of the approach runway lighting system at the north end of Runway 01/19. This action is required to provide a safe platform for maintenance and to bring the system into compliance, to the maximum extent feasible, with all federal, state, and local regulations and codes; and environmental and aviation requirements as identified in Section 1.3 of the Environmental Assessment. In accordance with UFC 3-535-01 an overall lighting system length of 3,000 feet extending from the runway threshold into the approach zone is required. However, if terrain or other local conditions prevent a full-length installation, the system may be shortened to not less than 2,400 feet. Currently, Runway 01/19 is operating under a waiver (Waiver Number PWO5-0910-EGL) for a 1,500-foot system that matches the existing site conditions based on gradient (i.e., terrain), and because the land beyond 1,500 feet does not belong to the USAF. In addition, to comply with UFC 3-535-01, Section 3-1.4.3, *Obstruction Clearances*, selective vegetative clearing will be required in the approach zone within a 200-foot-wide area as measured from each side of the runway centerline and 200-feet from the runway threshold and before the start of the approach zone. The Proposed Action would include the following actions:

- A temporary structure would be constructed across the stream to allow for access during runway lighting improvements. Mats or other ground-level access would be used in wetland areas.
- The entire system would be demolished. All piles located in the stream, including the walkway, would be removed.
- All piles located in the wetlands or floodplains would be cut at the mudline.
- New concrete or steel piles would be installed and a rigid platform would be constructed above the water line.
- A frangible or semi-frangible lighting structure would be mounted to the platform. This structure would be mounted so it can be lowered for electricians to safely change the bulbs.
- The walkway would be replaced with steel or concrete piles and non-combustible construction.
- Selective vegetative clearing would occur in compliance with UFC 3-535-01, Section 3-1.4.3, *Obstruction Clearances*.

- Coordination with Eglin's onsite USFWS staff would be required during vegetation removal
- Within 30 meters of the edge of the stream, only hand-cutting of vegetation would be allowed
- Vegetation cannot be de-rooted/de-stumped
- Trees would be selectively cut within the approach plain
- USFWS would use felled trees for rehabilitation purposes for the stream channel

Piles would be removed with a crane or similar piece of equipment using a strap or grapple type method and simply pulled straight up and out of the substrate. Removal with a crane would result in substrate compaction and subsequent increased turbidity. Potential effects from this action would be temporary and localized in nature. An alternate method of piling removal would include jetting out the pole with high-pressure water to loosen the sediments around the piles. This method would be the least preferred due to the adverse impacts from sedimentation and effects on water quality. Jetting creates a larger area of soil and sediment disturbance from high-pressure water. The high pressure is required to blast away sediment to excavate the piling. Up to 16 pilings would be removed from the stream channel and approximately 8 new concrete or steel pilings would be placed within the stream channel. This reduces the amount of obstructions by half within the stream channel.

## Federal Consistency Review

Statutes addressed as part of the Florida Coastal Zone Management Program consistency review and considered in the analysis of the Proposed Action are discussed in the following table.

Pursuant to 15 C.F.R. § 930.41, the Florida State Clearinghouse has 60 days from receipt of this document in which to concur with or object to this Consistency Determination, or to request an extension, in writing, under 15 C.F.R. § 930.41(b). Florida's concurrence will be presumed if Eglin AFB does not receive its response on the 60<sup>th</sup> day from receipt of this determination.

## Florida Coastal Management Program Consistency Review

Statute	Consistency	Scope
Chapter 161 <i>Beach and Shore Preservation</i>	The Proposed Action would not affect beach and shore management, specifically as it pertains to: The Coastal Construction Permit Program. The Coastal Construction Control Line (CCCL) Permit Program. The Coastal Zone Protection Program. All activities would occur on federal property.	This statute provides policy for the regulation of construction, reconstruction, and other physical activities related to the beaches and shores of the state. Additionally, this statute requires the restoration and maintenance of critically eroding beaches.
Chapter 163, Part II <i>Growth Policy; County and Municipal Planning; Land Development Regulation</i>	The Proposed Action would not affect local government comprehensive plans.	Requires local governments to prepare, adopt, and implement comprehensive plans that encourage the most appropriate use of land and natural resources in a manner consistent with the public interest.
Chapter 186 <i>State and Regional Planning</i>	The Proposed Action would be consistent with Florida's statutes and regulations regarding state plans for water use, land development or transportation.	Details state-level planning efforts. Requires the development of special statewide plans governing water use, land development, and transportation.
Chapter 252 <i>Emergency Management</i>	The Proposed Action would not affect the state's vulnerability to natural disasters. The Proposed Action would not affect emergency response and evacuation procedures.	Provides for planning and implementation of the state's response to, efforts to recover from, and the mitigation of natural and manmade disasters.
Chapter 253 <i>State Lands</i>	All actions will take place within Eglin property. Therefore, the Proposed Action would not negatively affect state lands.	Addresses the state's administration of public lands and property of this state and provides direction regarding the acquisition, disposal, and management of all state lands.
Chapter 258 <i>State Parks and Preserves</i>	All actions would take place within Eglin property. Therefore, the Proposed Action would not negatively affect state parks, recreational areas and aquatic preserves.	Addresses administration and management of state parks and preserves.
Chapter 259 <i>Land Acquisition for Conservation or Recreation</i>	The Proposed Action would not affect tourism and/or outdoor recreation.	Authorizes acquisition of environmentally endangered lands and outdoor recreation lands.
Chapter 260 <i>Florida Greenways and Trails Act</i>	The Proposed Action would not affect the Greenways and Trails Program.	Established in order to conserve, develop, and use the natural resources of Florida for healthful and recreational purposes.

Statute	Consistency	Scope
Chapter 267 <i>Historical Resources</i>	There are no known cultural resources located in the vicinity of the project area. However, in the event that additional archaeological resources are inadvertently discovered during construction, 96th CEG/CEVH, Cultural Resources would be notified immediately and further ground-disturbing activities would cease in that area. Identified resources would be managed in compliance with Federal Law and Air Force regulations. Therefore, the Proposed Action would be consistent with Florida's statutes and regulations regarding the state's archaeological and historical resources.	Addresses management and preservation of the state's archaeological and historical resources.
Chapter 288 <i>Commercial Development and Capital Improvements</i>	The Proposed Action would occur on federal property and would not affect future business opportunities on state lands, or the promotion of tourism in the region.	Promotes and develops general business, trade, and tourism components of the state economy
Chapter 334 <i>Transportation Administration</i>	The Proposed Action would not affect transportation.	Addresses the state's policy concerning transportation administration.
Chapter 339 <i>Transportation Finance and Planning</i>	The Proposed Action would not affect the finance and planning needs of the state's transportation system.	Addresses the finance and planning needs of the state's transportation system.

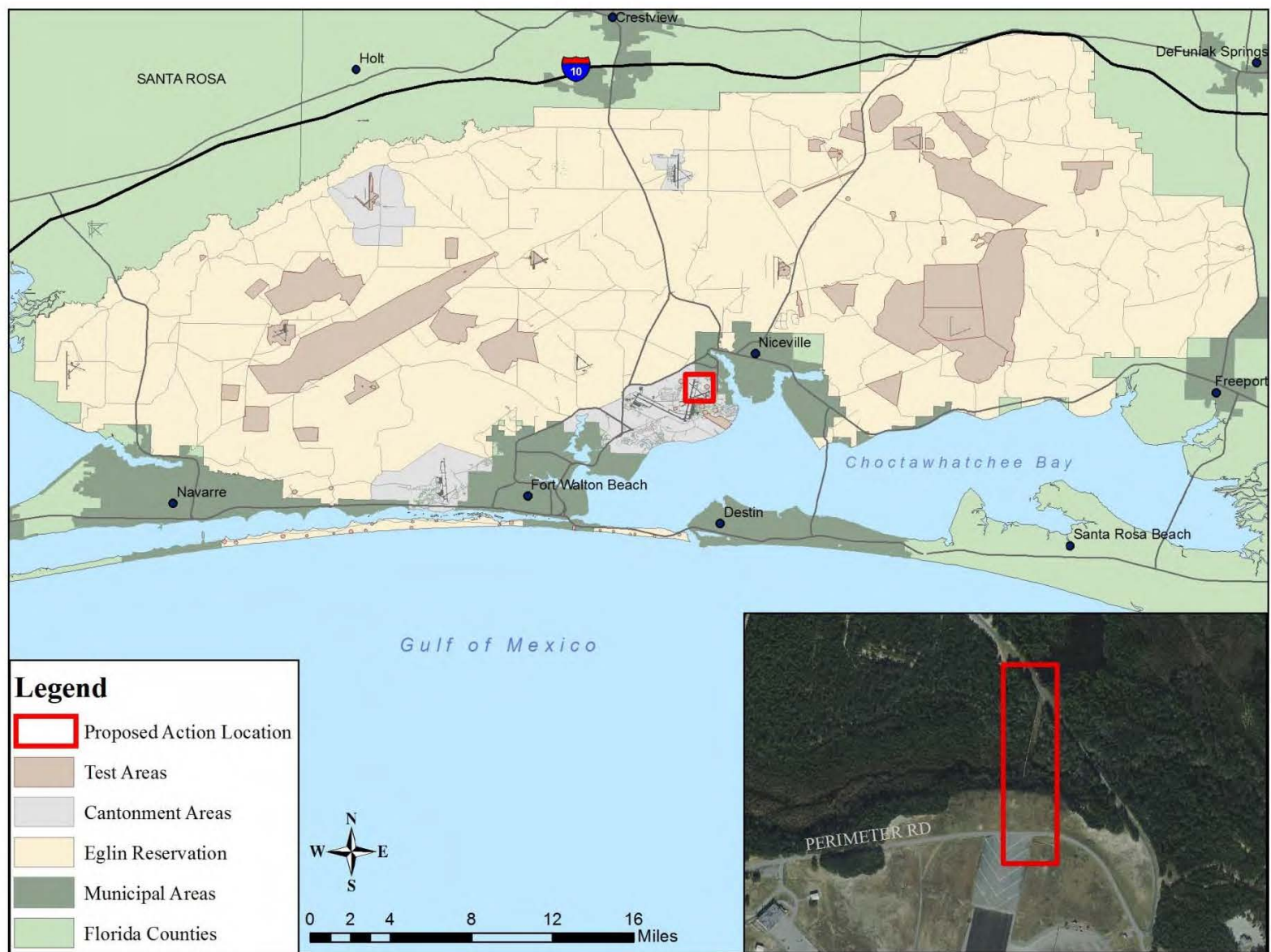
Statute	Consistency	Scope
<p>Chapter 373 <i>Water Resources</i></p>	<p>Short-term, minor, adverse effects on surface waters and wetlands would be expected from activities related to construction of a temporary access structure, demolition and removal of piles, installation of new piles, replacement of the walkway and vegetation removal. Long-term, negligible to minor, adverse effects would be expected on floodplains from activities related to construction of a temporary access structure, addition of stainless-steel sleeves, installation of new piles, and replacement of portions of the walkway. The installation of new steel or concrete piles would have a long-term, beneficial effect on surface water and wetlands by eliminating the continued leaching of creosote compounds into the wetland soils and surface water. Impacts on water resources would be reduced with the implementation of best management practices (BMPs) and mitigation measures described in Section 4 of the Environmental Assessment (EA). An Environmental Resource Permit from the Northwest Florida Water Management District (NFWMD) per FAC 62-346 would be required for the Proposed Action. Eglin Water Resources (96 CEG/CEVCE) would coordinate all applicable permitting requirements in accordance with the Florida Administrative Code. Therefore, the Proposed Action would be consistent with Florida's statutes and regulations regarding the water resources of the state.</p>	<p>Addresses sustainable water management; the conservation of surface and ground waters for full beneficial use; the preservation of natural resources, fish, and wildlife; protecting public land; and promoting the health and general welfare of Floridians.</p>
<p>Chapter 375 <i>Outdoor Recreation and Conservation Lands</i></p>	<p>The Proposed Action would not affect opportunities for recreation on state lands.</p>	<p>Develops comprehensive multipurpose outdoor recreation plan to document recreational supply and demand, describe current recreational opportunities, estimate need for additional recreational opportunities, and propose means to meet the identified needs.</p>

Statute	Consistency	Scope
Chapter 376 <i>Pollutant Discharge Prevention and Removal</i>	The removal and disposal of the creosote piles would be conducted in accordance with Eglin's Hazardous Waste Management Plan and Federal, state, and local regulations for hazardous waste disposal. No impacts on or from Environmental Restoration Program (ERP) Site D7 would be expected, as construction and demolition activities would not disturb the soil or groundwater at ERP Site D7. A health and safety officer should be present during excavation activities. If contamination is encountered, material would be handled, stored, transported, and disposed of in accordance with applicable Federal, state, and local regulations (see Section 3.3.2 of the EA, for further details on ERP Site D7). Potential impacts on or from contaminated materials would be reduced with the implementation of BMPs and environmental protection measures described in Section 4 of the EA. Therefore, the Proposed Action would be consistent with Florida's statutes and regulations regarding the transfer, storage, or transportation of pollutants.	Regulates transfer, storage, and transportation of pollutants, and cleanup of pollutant discharges.
Chapter 377 <i>Energy Resources</i>	The Proposed Action would not affect energy resource production, including oil and gas, and/or the transportation of oil and gas.	Addresses regulation, planning, and development of oil and gas resources of the state.
Chapter 379 <i>Fish and Wildlife Conservation</i>	The Proposed Action is in accordance with the Special Rule 4(d) for the Okaloosa darter described within the Federal Register: 50 CFR Part 17.11(h)/Vol. 76, No. 63/Friday, April 1, 2011/Rules and Regulations. The Special Rule 4(d) allows for take for the purpose of improving fish passage on Eglin AFB, when it is consistent with a Service-approved Integrated Natural Resources Management Plan (INRMP) and the Threatened and Endangered Species Component Plan. Eglin NRS believes that the replace of the approach lighting system of Runway 01/19 would be in accordance with the Special Rule 4(d) provided that mitigation measures and BMPs in Chapter 4 of the EA are followed to reduce impacts to the stream and riparian area from the proposed activities. It is difficult to determine the exact extent of take, since darters have not been located in this area during past surveys; however, Eglin NRS estimates the take of 5-30 Okaloosa darters covered under the 4(d) Rule Exemption. Therefore, the Proposed Action would be consistent with the State's policies concerning the protection of wildlife.	Addresses the management and protection of the state of Florida's wide diversity of fish and wildlife resources.



<b>Statute</b>	<b>Consistency</b>	<b>Scope</b>
Chapter 380 <i>Land and Water Management</i>	The Proposed Action would occur on federally owned lands. Under the Proposed Action, development of state lands with regional (i.e. more than one county) impacts would not occur. No changes to coastal infrastructure such as capacity increases of existing coastal infrastructure, or use of state funds for infrastructure planning, designing or construction would occur.	Establishes land and water management policies to guide and coordinate local decisions relating to growth and development.
Chapter 381 <i>Public Health, General Provisions</i>	The Proposed Action would not affect the state's policy concerning the public health system.	Establishes public policy concerning the state's public health system.
Chapter 388 <i>Mosquito Control</i>	The Proposed Action would not affect mosquito control efforts.	Addresses mosquito control effort in the state.
Chapter 403 <i>Environmental Control</i>	Eglin's Water Resources Section (96 CEG/CEVCE) would coordinate all applicable permits in accordance with the FAC. Air quality impacts from the Proposed Action would be minimal. Eglin AFB would take reasonable precautions to minimize fugitive particulate (dust) emissions during any construction activities in accordance with FAC 62-296. The removal and disposal of the creosote piles would be conducted in accordance with Eglin's Hazardous Waste Management Plan and Federal, state, and local regulations for hazardous waste disposal. Therefore, the Proposed Action would be consistent with the State's policies concerning water quality, air quality, pollution control, solid waste management, or other environmental control efforts.	Establishes public policy concerning environmental control in the state.

Statute	Consistency	Scope
<p>Chapter 582 <i>Soil and Water Conservation</i></p>	<p>Short-term, minor, adverse effects on soils would be expected from activities related to construction of a temporary access structure, demolition and removal of piles, installation of new piles, replacement of the walkway, and vegetation removal. The construction would require minor disturbance of previously disturbed soils for construction access, demolition of existing structures, and installation of new poles. This would result in an increased potential for soil erosion and sedimentation from disturbance to the site, removal of vegetation, removal of existing piles from the ground, and pile driving to set new piles. Soil erosion would be limited by adhering to construction BMPs for work within wetlands and floodplains. This alternative also has the potential to disturb soils and sediments with creosote-associated compounds during the demolition process. See Section 3.3 of the EA for a detailed discussion on creosote. The removal of all creosote piles and related structures and the installation of new steel or concrete piles would have a long-term, beneficial effect by eliminating continued creosote leaching into the soils.</p> <p>Therefore, the Proposed Action would be consistent with the Florida's statutes and regulations regarding soil and water conservation efforts.</p>	<p>Provides for the control and prevention of soil erosion.</p>



**Figure 1. Regional Location Map**



**Figure 2. Proposed Action Location**

## **APPENDIX D**

### **SELECT DEFINITIONS OF RESOURCE AREAS ANALYZED IN THE EA**



## Appendix D

### Select Definitions of Resource Areas Analyzed in the EA

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#### Air Quality

The CAA directed the USEPA to develop, implement, and enforce strong environmental regulations that would ensure clean and healthy ambient air quality. To protect public health and welfare, the USEPA developed numerical concentration-based standards, or NAAQS, for pollutants that have been determined to impact human health and the environment. The USEPA established both primary and secondary NAAQS under the provisions of the CAA. NAAQS are currently established for six criteria air pollutants: ozone (O<sub>3</sub>), carbon monoxide (CO), nitrogen dioxide (NO<sub>2</sub>), sulfur dioxide (SO<sub>2</sub>), respirable particulate matter (including particulate matter equal to or less than 10 microns in diameter [PM<sub>10</sub>] and particulate matter equal to or less than 2.5 microns in diameter [PM<sub>2.5</sub>]), and lead (Pb). The primary NAAQS represent maximum levels of background air pollution that are considered safe, with an adequate margin of safety to protect public health. Secondary NAAQS represent the maximum pollutant concentration necessary to protect vegetation, crops, and other public resources along with maintaining visibility standards. The USEPA has delegated the authority for ensuring compliance with the NAAQS to the FDEP, Division of Air Resource Management. Therefore, the Proposed Action is subject to rules and regulations developed by this regulatory body.

Although O<sub>3</sub> is considered a criteria air pollutant and is measurable in the atmosphere, it is not often considered a regulated air pollutant when calculating emissions because O<sub>3</sub> is typically not emitted directly from most emissions sources. Ozone is formed in the atmosphere by photochemical reactions involving sunlight and previously emitted pollutants or “O<sub>3</sub> precursors.” These O<sub>3</sub> precursors consist primarily of nitrogen oxides (NO<sub>x</sub>) and volatile organic compounds (VOCs) that are directly emitted from a wide range of emissions sources. For this reason, regulatory agencies attempt to limit atmospheric O<sub>3</sub> concentrations by controlling VOC pollutants (also identified as reactive organic gases) and NO<sub>2</sub>. As authorized by the CAA, the USEPA has delegated responsibility for ensuring compliance with NAAQS to the states and local agencies. As such, each state must develop air pollutant control programs and promulgate regulations and rules that focus on meeting NAAQS and maintaining healthy ambient air quality levels.

These programs are detailed in State Implementation Plans (SIPs) that must be developed by each state or local regulatory agency and approved by the USEPA. An SIP is a compilation of regulations, strategies, schedules, and enforcement actions designed to move the state into compliance with all NAAQS. Any changes to the compliance schedule or plan (e.g., new regulations, emissions budgets, or controls) must be incorporated into the SIP and approved by the USEPA.

In 1997, the USEPA initiated work on new General Conformity rules and guidance to reflect the new 8-hour O<sub>3</sub>, PM<sub>2.5</sub>, and regional haze standards that were promulgated in that year. The 1-hour O<sub>3</sub> standard will no longer apply to an area 1 year after the effective date of the designation of that area for the 8-hour O<sub>3</sub> NAAQS. The effective designation date for most areas was 15 June 2004. USEPA designated PM<sub>2.5</sub> nonattainment areas in December 2004, and finalized the PM<sub>2.5</sub> implementation rule in January 2005.

On 22 September 2009, the USEPA issued a final rule for mandatory greenhouse gas (GHG) reporting from large GHG emissions sources in the United States. The purpose of the rule is to collect comprehensive and accurate data on carbon dioxide (CO<sub>2</sub>) and other GHG emissions that can be used to



inform future policy decisions. In general, the threshold for reporting is 25,000 metric tons or more of CO<sub>2</sub> equivalent per year. The first emissions report is due in 2011 for 2010 emissions. GHG emissions will become factors in Prevention of Significant Deterioration (PSD) and Title V permitting and reporting, according to a USEPA rulemaking issued on 3 June 2010 (75 Federal Register [FR] 31514). GHG emissions thresholds of significance for permitting of stationary sources are 75,000 tons CO<sub>2</sub> equivalent per year and 100,000 tons CO<sub>2</sub> equivalent per year under these permit programs. GHGs became regulated pollutants under the CAA for purposes of air permitting in January 2011.

EO 13514, *Federal Leadership in Environmental, Energy, and Economic Performance*, was signed in October 2009 and requires agencies to set goals for reducing GHG emissions. One requirement within EO 13514 is the development and implementation of an agency Strategic Sustainability Performance Plan (SSPP) that prioritizes agency actions based on lifecycle return on investment. Each SSPP is required to identify, among other things, “agency activities, policies, plans, procedures, and practices” and “specific agency goals, a schedule, milestones, and approaches for achieving results, and quantifiable metrics” relevant to the implementation of EO 13514. On 26 August 2010, DOD released its SSPP to the public. This implementation plan describes specific actions DOD will take to achieve its individual GHG reduction targets, reduce long-term costs, and meet the full range of goals of the EO. All SSPPs segregate GHG emissions into three categories: Scope 1, Scope 2, and Scope 3 emissions. Scope 1 GHG emissions are those directly occurring from sources that are owned or controlled by the agency. Scope 2 GHG emissions are indirect emissions generated in the production of electricity, heat, or steam purchased by the agency. Scope 3 GHG emissions are other indirect GHG emissions that result from agency activities but from sources that are not owned or directly controlled by the agency. The GHG emissions goals in the DOD SSPP include reducing Scope 1 and Scope 2 GHG emissions by 34 percent by 2020, relative to FY 2008 emissions, and reducing Scope 3 GHG emissions by 13.5 percent by 2020, relative to FY 2008 emissions. The first GHG air quality emissions report is due in 2011 for 2010 emissions.

Title V of the CAA Amendments of 1990 requires states and local agencies to permit major stationary sources. A major stationary source is a facility (i.e., plant, installation, or activity) that has the potential to emit more than 100 tons per year (tpy) of any one criteria air pollutant, 10 tpy of a hazardous air pollutant (HAP), or 25 tpy of any combination of HAPs.

Federal PSD regulations apply in attainment areas to major stationary sources (e.g., sources with the potential to emit 250 tpy of any criteria pollutant) and significant modifications to major stationary sources (e.g., change that adds 0.6 tpy for lead, or 10 tpy to 100 tpy depending on the criteria pollutant, to the facility’s potential to emit). Additional PSD permitting thresholds apply to increases in stationary source GHG emissions, as previously discussed. PSD permitting can also apply to a proposed project that is a modification with a net emissions increase to an existing PSD major source and (1) the proposed project is within 10 kilometers of national parks or wilderness areas (i.e., Class I Areas), and (2) regulated stationary source pollutant emissions would cause an increase in the 24-hour average concentration of any regulated pollutant in the Class I area of 1 µg/m<sup>3</sup> or more (40 CFR 52.21[b][23][iii]). PSD regulations also define ambient air increments, limiting the allowable increases to any area’s baseline air contaminant concentrations, based on the area’s class designation (40 CFR 52.21[c]) (USEPA 2009a). PSD regulations do not apply to the Proposed Action and are not discussed further in this EA because Eglin AFB is not an existing PSD major source and there are only minor stationary source emissions increases associated with the Proposed Action.

Although O<sub>3</sub> is considered a criteria air pollutant and is measurable in the atmosphere, it is not often considered a regulated air pollutant when calculating emissions because O<sub>3</sub> is typically not emitted directly from most emissions sources, but is formed rather in the atmosphere by photochemical reactions involving sunlight and previously emitted pollutants or “O<sub>3</sub> precursors.” These O<sub>3</sub> precursors consist primarily of NO<sub>x</sub> and VOCs that are directly emitted from a wide range of emissions sources, including during fossil fuel combustion while generating electricity or operating vehicles. For this reason,



regulatory agencies attempt to limit atmospheric O<sub>3</sub> concentrations by controlling VOC pollutants (also identified as reactive organic gases) and NO<sub>2</sub>. However, combustion of wood fuel would not emit VOCs or O<sub>3</sub>.

The FDEP has adopted the federal primary and secondary NAAQS. The FDEP has developed a USEPA-approved SIP. The FDEP works with Eglin AFB in monitoring and implementing the installation's stationary source permits and emissions inventory. As required by FDEP permitting requirements (contained in F.A.C. Chapter 62-3), Eglin AFB routinely calculates annual criteria pollutant emissions from stationary emissions sources and provides this information to the state when required. However, there is no routine requirement to calculate pollutant emissions for aircraft operations, government-owned and privately owned vehicles, aircraft engine testing, aerospace ground equipment, and other sources not included in the state's stationary source permitting program.

VOCs are emitted primarily from handling of organic liquids (i.e., refueling activities). Miscellaneous particulate matter sources at Eglin AFB include abrasive blasting units and woodworking equipment. Other stationary sources at Eglin AFB include paint booths, wash racks, and a dry cleaning facility. The regulated aerospace paint booths and dry cleaners are subject to National Emission Standards for Hazardous Air Pollutants requirements.

## Human Health and Safety

The health and safety of onsite military and civilian workers are safeguarded by numerous DOD and USAF regulations designed to ensure compliance with standards issued by OSHA and the USEPA. These standards specify the amount and type of training required for industrial workers, the use of protective equipment and clothing, engineering controls, and maximum exposure limits for workplace stressors.

Safety and accident hazards can often be identified and reduced or eliminated. Necessary elements for an accident-prone situation or environment include the presence of the hazard itself together with the exposed (and possibly susceptible) population. The degree of exposure depends primarily on the proximity of the hazard to the population. Activities that can be hazardous include transportation, maintenance and repair activities, and the creation of extremely noisy environments. The proper operation, maintenance, and repair of vehicles and equipment carry important safety implications. Any facility or human-use area with potential explosive or other rapid oxidation process creates unsafe environments for nearby populations. Extremely noisy environments can also mask verbal or mechanical warning signals such as sirens, bells, or horns.

## Hazardous Materials and Wastes

A hazardous substance, pursuant to the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) (42 U.S.C. § 9601(14)), is defined as: “(A) any substance designated pursuant to section 1321(b)(2)(A) of Title 33; (B) any element, compound, mixture, solution, or substance designated pursuant to section 9602 of this title; (C) any hazardous waste having the characteristics identified under or listed pursuant to section 3001 of the Resource Conservation and Recovery Act (RCRA) of 1976, as amended, (42 U.S.C. § 6921); (D) any toxic pollutant listed under section 1317(a) of Title 33; (E) any HAP listed under section 112 of the CAA (42 U.S.C. § 7412); and (F) any imminently hazardous chemical substance or mixture with respect to which the Administrator of the USEPA has taken action pursuant to section 2606 of Title 15. The term does not include petroleum, including crude oil or any fraction thereof, which is not otherwise specifically listed or designated as a hazardous substance, and the term does not include natural gas, natural gas liquids, liquefied natural gas, or synthetic gas usable for fuel (or mixtures of natural gas and such synthetic gas).”

Hazardous materials are defined by 49 CFR 171.8 as “hazardous substances, hazardous wastes, marine pollutants, elevated temperature materials, materials designated as hazardous in the Hazardous Materials Table (49 CFR 172.101), and materials that meet the defining criteria for hazard classes and divisions” in 49 CFR Part 173. Transportation of hazardous materials is regulated by the U.S. Department of Transportation regulations within 49 CFR Parts 105–180.

RCRA defines a hazardous waste in 42 U.S.C. 6903, as “a solid waste, or combination of solid wastes, which because of its quantity, concentration, or physical, chemical, or infectious characteristics may (A) cause, or significantly contribute to an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or (B) pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed of, or otherwise managed.”

## Soils

Topography and physiography pertain to the general shape and arrangement of a land surface, including its height and the position of its natural and human-made features.

Geology is the study of the Earth’s composition and provides information on the structure and configuration of surface and subsurface features. Such information derives from field analysis based on observations of the surface and borings to identify subsurface composition.

Soils are the unconsolidated materials overlying bedrock or other parent material. Soils typically are described in terms of their complex type, slope, and physical characteristics. Differences among soil types in terms of their structure, elasticity, strength, shrink-swell potential, and erosion potential affect their abilities to support certain applications or uses. In appropriate cases, soil properties must be examined for their compatibility with particular construction activities or types of land use.

The following soils are mapped within the project area of all alternatives:

*Dorovan muck.* This is a nearly level, very poorly drained, moderately permeable soil type high organic matter. Dorovan muck soils are found in large hardwood swamps and on flood plains along drainageways. Slopes are dominantly less than 2 percent and the water table is near or above the surface most of the year. These soils are not considered to be well-suited for development due to the potential for flooding and wetness (USDA 1995).

*Lakeland sand, 12 to 30 percent slopes.* This series of soils consists of moderately steep to steep, excessively drained, rapidly permeable soils on upland side slopes leading to drainageways and depressional areas. The seasonal high water table is present at a depth of more than 80 inches and the soil dries quickly after rains. This soil is considered poorly-suited for development related uses primarily due to slope (USDA 1995).

## Water Resources

Waters of the United States are defined within the CWA, as amended, and jurisdiction is addressed by the USEPA and the USACE. These agencies assert jurisdiction over (1) traditional navigable waters, (2) wetlands adjacent to navigable waters, (3) nonnavigable tributaries of traditional navigable waters that are relatively permanent where the tributaries typically flow year-round or have continuous flow at least seasonally (e.g., typically 3 months), and (4) wetlands that directly abut such tributaries. Section 404 of the CWA authorizes the Secretary of the Army, acting through the Chief of Engineers, to issue permits for the discharge of dredge or fill into waters of the United States including wetlands. Encroachment into waters of the United States and wetlands requires permits from the state and the federal governments.

**Floodplains.** Floodplains are areas of low-level ground present along rivers, stream channels, or coastal waters. The living and nonliving parts of natural floodplains interact with each other to create dynamic systems in which each component helps to maintain the characteristics of the environment that support it. Floodplain ecosystem functions include natural moderation of floods, flood storage and conveyance, groundwater recharge, nutrient cycling, water quality maintenance, and diversification of plants and animals. Floodplains provide a broad area to spread out and temporarily store floodwaters. This reduces flood peaks and velocities and the potential for erosion. In their natural vegetated state, floodplains slow the rate at which the incoming overland flow reaches the main water body (FEMA 1986).

Floodplains are subject to periodic or infrequent inundation due to rain or melting snow. Risk of flooding typically hinges on local topography, the frequency of precipitation events, the size of the watershed above the floodplain, and upstream development. Flood potential is evaluated by the Federal Emergency Management Agency (FEMA), which defines the 100-year floodplain as an area within which there is a 1 percent chance of inundation by a flood event in a given year. Certain facilities inherently pose too great a risk to be in either the 100- or 500-year floodplain, such as hospitals, schools, or storage buildings for irreplaceable records. Federal, state, and local regulations often limit floodplain development to passive uses, such as recreational and preservation activities, to reduce the risks to human health and safety.

**Wetlands.** Wetlands perform several hydrologic functions, including water quality improvement, groundwater recharge and discharge, pollution mitigation, nutrient cycling, storm water attenuation and storage, sediment detention, and erosion protection. Wetlands are protected as a subset of the waters of the United States under Section 404 of the CWA. The term “waters of the United States” has a broad meaning under the CWA and incorporates deepwater aquatic habitats and special aquatic habitats (including wetlands). The USACE defines wetlands as “those areas that are inundated or saturated with ground or surface water at a frequency and duration to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted to life in saturated conditions. Wetlands generally include swamps, marshes, bogs, and similar areas” (33 CFR Part 329).

Jurisdictional waters of the United States are areas that convey water, exhibit an “ordinary high water mark,” and do not meet the three-parameter criteria for wetlands. An ordinary high water mark is defined as the line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of the soil, destruction of terrestrial vegetation, or the presence of litter and debris (33 CFR 328.3). The USACE recognizes three distinct types of drainage features: ephemeral drainages, intermittent drainages, and perennial drainages. Ephemeral drainages are fed primarily by storm water. They convey flows during and immediately after storm events; however, they might stop flowing or begin to dry if the interval between storms is sufficiently long. Under recent United States Supreme Court rulings, ephemeral drainages must also show a significant nexus to navigable waters for it to be considered jurisdictional. Intermittent drainages are fed primarily by groundwater and supplemented by storm water and flow for extended periods, but cease to flow occasionally or seasonally as a result of groundwater drawdown, seepage, or evapotranspiration. Perennial streams flow continuously except during periods of extended drought.

## Biological Resources

The Federal Noxious Weed Act (Public Law [P.L.] 93-629) mandates control of noxious weeds by limiting possible weed seed transport from infested areas to noninfested sites. EO 13112, *Invasive Species*, requires all federal agencies to prevent the introduction of invasive species, provide for their control, and minimize their economic, ecological, and human health impacts. Under EO 13112,

installations shall not, to the extent practicable, authorize, fund, or carry out management actions that are likely to cause the introduction or spread of invasive species.

Under the ESA, an “endangered species” is defined as any species in danger of extinction throughout all or a significant portion of its range. A “threatened species” is defined as any species likely to become an endangered species in the foreseeable future. The USFWS also maintains a list of species considered to be candidates for possible listing under the ESA. Although candidate species receive no statutory protection under the ESA, the USFWS has attempted to advise government agencies, industry, and the public that these species are at risk and might warrant protection under the ESA.

The Migratory Bird Treaty Act of 1918 (16 U.S.C. 703–712) as amended, and EO 13186, *Responsibilities of Federal Agencies to Protect Migratory Birds*, require federal agencies to minimize or avoid impacts on migratory birds listed in 50 CFR 10.13. If design and implementation of a federal action cannot avoid measurable negative impact on migratory birds, EO 13186 directs the responsible agency to develop and implement, within 2 years, a Memorandum of Understanding with the USFWS that shall promote the conservation of migratory bird populations.

## References

- |           |  |
|-----------|--|
| FEMA 1986 | Federal Emergency Management Agency (FEMA). 1986. A Unified National Program for Floodplain Management, March 1986.                              |
| USDA 1995 | U.S. Department of Agriculture (USDA), Natural Resources Conservation Service. 1995. <i>Soil Survey of Okaloosa County</i> , Florida. June 1995. |

## **APPENDIX E**

### **SUPPLEMENTAL INFORMATION ON BIOLOGICAL RESOURCES**



## Appendix E

### Supplemental Information on Biological Resources

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#### E.1 Eglin AFB Habitat Types

Four broad matrix ecosystems exist on Eglin AFB: sandhills, flatwoods, wetlands/riparian, and maritime hammock. The ecosystems are defined by floral, faunal, and geophysical characteristics. Artificially maintained urban/landscaped areas also exist on Eglin AFB, though none are present within the bounds area. Sandhills and wetland/riparian habitat types are found within the bounds area and are further described below. **Table E-1** provides a list of typical flora (plants) and fauna (animals) that could be expected to occur within these habitats and **Section E.2** provides a description of sensitive species that are found within these habitats.

***Sandhills Matrix.*** This system is the most extensive natural community type on Eglin AFB, accounting for approximately 78 percent or 362,000 acres of the base. Longleaf Pine Sandhills are characterized by an open, savanna-like structure with a moderate to tall canopy of longleaf pine, a sparse midstory of oaks and other hardwoods, and a diverse groundcover comprised mainly of grasses, forbs, and low stature shrubs. The structure and composition is maintained by frequent fires, (every 3-5 years), which control hardwood, sand pine and titi encroachment (Eglin AFB 2010).

Longleaf Pine Sandhills consist of a high diversity of species adapted to fire and the heterogeneous conditions that fires create. Variation within the Sandhills is recognized by the two associations differing in the dominance of grass species (wiregrass versus bluestem). Sandhills are often associated with and grade into Scrub, Upland Pine Forest, Xeric Hammock, or slope forests. The functional significance of the Sandhill Matrix is to provide maintenance of regional biodiversity. Additionally, the sandhills, due to their wide coverage on Eglin, are the matrix across which fire carries into the other imbedded fire-dependent systems.

As little as 5,000 acres of old growth longleaf pine forest remains globally and Eglin's sandhills contain more than any other forest in the world. All stands of old growth longleaf pine have been identified, inventoried, mapped, and protected. Eglin AFB maintains the largest and least fragmented single ownership of longleaf pine in the world, and has the best remaining old growth longleaf pine (Eglin AFB 2010).

***Wetland/Riparian Matrix.*** Wetlands are extraordinarily important contributors to the health and diversity of the landscape. Riparian areas are generally found along a water feature such as a river, stream, or creek. Great diversity of invertebrate and fish species is found within the streams associated with these watersheds. The streams originate in the sandy uplands of the installation, are perennial (continuously flowing), and fed by groundwater recharge. Flood events only occur during extreme rain events (e.g., hurricanes); otherwise, flows are relatively consistent. Temperatures fluctuate during the year and each day, being more constant near the headwaters (Eglin AFB 2010).

Wetland types found within the wetland/riparian matrix include depression wetlands, seepage slopes, and floodplain wetlands (Eglin AFB 2010).

**Table E-1. Typical Plant and Animal Species of Eglin AFB by Habitat**

Plants		Animals	
Common Name	Scientific Name	Common Name	Scientific Name
<b>Sandhills Ecological Matrix</b>			
Long leaf pine	<i>Pinus palustris</i>	Red-cockaded Woodpecker	<i>Picoides borealis</i>
Turkey Oak	<i>Quercus laevis</i>	Bobwhite Quail	<i>Colinus virginianus</i>
Blackjack Oak	<i>Q. marilandica</i>	Great Horned Owl	<i>Bubo virginianus</i>
Bluejack Oak	<i>Q. incana</i>	Gopher Tortoise	<i>Gopherus polyphemus</i>
Wiregrass	<i>Aristida stricta</i>	Eastern indigo snake	<i>Drymarchons corais</i>
Saw Palmetto	<i>Serona repens</i>	Six-lined Racerunner	<i>Cnemidophorus sexlineatus</i>
Bracken Fern	<i>Pteridium aquilinum</i>	Diamondback Rattlesnake	<i>Crotalus adamanteus</i>
Blueberry	<i>Vaccinium</i> spp	Raccoon	<i>Procyon lotor</i>
Yaupon	<i>Ilex vomitoria</i>	Florida Black Bear	<i>Ursus americanus floridanus</i>
Gallberry	<i>Ilex glabra</i>	Fox Squirrel	<i>Sciurus niger</i>
Gopher Apple	<i>Licania michauxii</i>	Least Shrew	<i>Cryptotis parva</i>
Sand Blackberry	<i>Rubus cuneifolius</i>	Cottontail Rabbit	<i>Sylvilagus floridanus</i>
Pine-woods Bluestem	<i>Andropogon arctatus</i>	Pocket Gopher	<i>Geomys pinetus</i>
		White-tailed Deer	<i>Castor canadensis</i>
		Florida pine snake	<i>Pituophis melanoleucus mugitis</i>
<b>Wetland/Riparian Ecological Matrix</b>			
Cattail	<i>Typha domingensis</i>	Florida Black Bear	<i>Ursus americanus floridanus</i>
Phragmites	<i>Phragmites australis</i>	American Alligator	<i>Alligator mississippiensis</i>
White Cedar	<i>Chamaecyparis thyoides</i>	Pine Barrens Tree Frog	<i>Hyla andersonii</i>
Swamp Tupelo	<i>Nyssa biflora</i>	Five-lined Skink	<i>Eumeces fasciatus</i>
Purple Pitcher Plant	<i>Sarracena purpurea</i>	Green Anole	<i>Anolis carolinensis</i>
Swamp Titi	<i>Cyrilla racemiflora</i>	Garter Snake	<i>Thamnophis sirtalis</i>
Tulip Poplar	<i>Liriodendron tulipifera</i>	Raccoon	<i>Procyon lotor</i>
Sweetbay Magnolia	<i>Magnolia virginiana</i>	American Beaver	<i>Castor canadensis</i>
Redbay	<i>Persea borbonia</i>	Little Blue Heron	<i>Egretta caerulea</i>

Source: USAF 2006



## E.2 Eglin AFB Sensitive Species

### *Federally Listed Species*

*Red-cockaded woodpecker.* The red-cockaded woodpecker (RCW) (*Picoides borealis*) is a federally listed endangered species endemic to open, mature old growth pine ecosystems in the southeastern United States. The RCW is a small (8 to 9 inches) woodpecker predominantly black and white in coloration. RCWs are the only woodpecker species in the southeast to excavate cavities in live pine trees. They require old growth pines for cavity excavation due to the greater presence of heartwood in older trees and RCWs prefer longleaf pines in particular due to the presence of red heart disease, which makes cavity construction easier.

The USFWS, in the 2003 Red-cockaded Woodpecker Recovery Plan, has identified Eglin AFB as 1 of 13 primary core populations. The recovery goal for each primary core population including Eglin is 350 potential breeding pairs. A thorough initial survey of suitable habitat on Eglin was conducted from 1989 to 1994. From this survey and population monitoring that was taking place simultaneously; the baseline population size for the year 1994 was a population estimate of 169 potential breeding groups. In 2009, the RCW population on Eglin has reached the designated recovery goal of 350 potential breeding groups (PBGs). The current population size is 443 active clusters and 401 PBGs.

The removal of longleaf pine trees, degradation of quality habitat (i.e., due to fire suppression or ground disturbance), and noise generated from mission-related events or other activities are potential threats to the RCW on Eglin Range. Eglin is executing a USFWS-approved management strategy to meet certain growth objectives of the RCW and to obtain increased mission flexibility with the federal requirements related to RCW impacts (Eglin AFB 2010).

Eglin EESD data includes the locations of active RCW cavity trees (trees containing one or more cavities that are utilized by the RCW) and inactive RCW cavity trees (trees containing cavities that were once utilized by the RCW but have not shown recent activity). Inactive RCW cavities are spatially recorded. The data also maps RCW foraging habitat around active clusters of RCW cavities in the GIS. If timber is to be removed within 0.5 miles of active cavity trees, then a forage habitat analysis must be completed to determine potential impacts. Consultation will be required if resulting resources fall below USFWS guidelines (Eglin AFB 2010).

*Eastern indigo snake.* The Eastern indigo snake (*Drymarchon corais couperi*) was listed as a threatened species in 1979. It is one of eight subspecies of primarily tropical snakes. Six of the eight subspecies are distributed in South or Central America; only the eastern indigo and the Texas indigo occur within the U.S. The primary reason for its listing is population decline resulting from habitat loss and fragmentation. Movement along travel corridors between seasonal habitats exposes the snake to danger from increased contact with humans.

Indigo snakes have been documented at 17 sites across the Eglin reservation. These observations are only incidental sightings and do not correspond to the range on Eglin AFB. The indigo snake utilizes sandhills during the winter months and frequently utilizes gopher tortoise burrows and the burrows of others species for over-wintering. Riparian areas are frequently utilized in the summer. The Eglin AFB Natural Resources Section (NRS) primarily conducts passive management for the indigo snake by maintaining suitable habitat conditions. This management includes the use of prescribed fire over large portions of Eglin's sandhills. The permanent closure of forest roads and the use of perimeter access controls will benefit indigo snakes by reducing the frequency of road-kills. Additionally, the management and recovery of the Eastern indigo snake is closely linked to the gopher tortoise. Management activities that benefit gopher tortoises will likely benefit the indigo snake as well (Eglin AFB 2010).

*Okaloosa darter.* The Okaloosa darter (*Etheostoma okaloosae*) was listed as an endangered species under the Endangered Species Act (ESA) in 1973 and was reclassified as a threatened species in 2011 (USFWS 2011). This downlisting was the result of the successful management of the population by the USFWS and Eglin AFB, in cooperation with their partners at Loyola University and the U.S. Geological Survey (USGS) in Gainesville, Florida. The USFWS has a goal to delist the species by 2015. If delisted, the Okaloosa darter will be the first vertebrate species on Department of Defense lands to be removed from the Endangered Species List (Eglin AFB 2010).

The Okaloosa darter (*Etheostoma okaloosae*) is a small, reddish-brown to greenish-yellow fish. This darter has a series of six to eight rows of small spots along the side of the body, and a prominent spot on the upper arm. The entire global population of the Okaloosa darter is endemic to Okaloosa and Walton counties and it occurs in six small streams flowing into two bayous of Choctawhatchee Bay. Seepage streams that Okaloosa darters inhabit have persistent discharge of clear, sand-filtered water through sandy channels, woody debris, and vegetation beds. Over 90 percent of the habitat is on Eglin AFB (Eglin AFB 2010).

Eglin's NRS initiated an Okaloosa darter monitoring program in 1995, which is conducted annually by the USGS Florida Integrated Science Center and Loyola University, Louisiana. The population is currently increasing with an overall estimate at 317,830 individuals within the 21 percent of their range that is currently sampled. From 1994 to 2005, Eglin NRS staff has rehabilitated and maintained 38 borrow pit sites and 279 NPS sites totaling 490.4 acres. The restoration of Mill Creek, which is cited by the Okaloosa Darter Recovery Plan as essential for recovery, was completed in 2008 (Eglin AFB 2010).

### ***State-Listed Species***

*Gopher tortoise.* The gopher tortoise (*Gopherus polyphemus*) is a state-listed threatened species. It also may become a federal "candidate" species, which means that the USFWS has concluded the species should be added as a threatened or endangered species under the ESA. The tortoise is found primarily within the sandhills and open grassland ecological associations on the Eglin Range. Gopher tortoises construct burrows that are frequently located in areas with low-growing plants and sandy, well-drained soils in open, sunny areas with bare patches of ground. Gopher tortoise burrows serve as important habitat for many species, including the federally listed eastern indigo snake (USAF 2006).

*Florida pine snake.* The Florida pine snake (*Pituophis melanoleucus mugitus*) is a state species of special concern. A state species of special concern is one that may become state listed as threatened in the future. The Florida pine snake inhabits dry areas such as the longleaf pine, oak woodlands, and sand pine scrub communities found within the Sandhills ecological association. The species is physically adapted for digging into loosely packed sand. It also enters into rodent burrows and occasionally into gopher tortoise burrows (USAF 2006).

*Florida black bear.* The Florida black bear (*Ursus americanus floridanus*) is currently listed as a state threatened species except in Baker and Columbia Counties and in Apalachicola National Forest. Florida black bear populations are currently found in Florida and Georgia, and there is also a small population in Alabama. Reasons for population declines include loss of habitat due to urban development and direct mortality due to collisions with vehicles. The black bear in Florida breed in June through 1 July, and young are born in January through February. Many of the black bears on Eglin AFB utilize large swamps and floodplain forests where they feed on fruits, acorns, beetles, and yellow jackets. Black bear sightings have occurred at numerous locations throughout Eglin AFB areas, both within the interstitial areas (between the test areas), and near urban areas (USAF 2006).

## Migratory Birds

Some migratory birds pass through Eglin AFB; however, Eglin AFB is not considered an important stopover area or a significant concentration site for neotropical migratory birds in the spring or fall (Tucker et al. 1996). Migratory and resident bird species at Eglin are primarily found in riparian, hammock, and barrier island habitats. These areas can serve as temporary habitat for neotropical birds migrating to and from the Caribbean and South and Central America. Neotropical migrants are more common at Eglin AFB during fall migration than spring migration (Tucker et al., 1996). **Table E-2** provides a list of neotropical and migratory birds that could be expected to occur, or are known to occur, on Eglin AFB.

## Invasive Nonnative Species

The Florida Exotic Pest Plant Council (FLEPPC) has developed a ranking system for invasive non-native plants as to their invasiveness in natural areas. *Category I species* are those species that are altering native plant communities by displacing native species, changing community structures or ecological functions, or hybridizing with native species. (This definition does not rely on the economic severity or geographic range of the problem, but on the documented ecological damage.) *Category II* species are those species that have increased in abundance or frequency but have not yet altered Florida plant communities. These species may become ranked *Category I*, if ecological damage is demonstrated (FLEPPC's 2005 List of Invasive Species) (Eglin AFB 2010). Chinese tallow (or popcorn tree) (*Triadica sebifera*), cogon grass, Japanese climbing fern (*Lygodium japonicum*), Chinese privet/hedge (*Ligustrum sinense*), and torpedo grass have been prioritized as the most problematic of the Category 1 species impacting Eglin AFB's ecosystems (Eglin AFB 2010).

**Table E-2. Migratory and Neotropical Birds Found on Eglin AFB**

<b>Common Name</b>	<b>Scientific Name</b>
Acadian flycatcher	<i>Empidonax virescens</i>
American redstart	<i>Setophaga ruticilla</i>
Black-and-white warbler	<i>Mniotilta varia</i>
Blackburnian warbler	<i>Dendroica fusca</i>
Blackpoll warbler	<i>Dendroica striata</i>
Black-throated blue warbler	<i>Dendroica caerulescens</i>
Black-throated green warbler	<i>Dendroica virens</i>
Blue-gray gnatcatcher	<i>Polioptila caerulea</i>
Blue grosbeak	<i>Guiraca caerulea</i>
Blue-winged warbler	<i>Vermivora pinus</i>
Broad-winged hawk	<i>Buteo platypterus</i>
Canada warbler	<i>Wilsonia canadensis</i>
Cape May warbler	<i>Dendroica tigrina</i>
Common yellowthroat	<i>Geothlypis trichas</i>
Eastern kingbird	<i>Tyrannus tyrannus</i>
Eastern wood-pewee	<i>Contopus virens</i>
Gray catbird	<i>Dumetella carolinensis</i>
Great crested flycatcher	<i>Myiarchus crinitus</i>
Hooded warbler	<i>Wilsonia citrine</i>
Indigo bunting	<i>Passerina cyanea</i>
Kentucky warbler	<i>Oporornis formosus</i>
Magnolia warbler	<i>Dendroica magnolia</i>
Merlin	<i>Falco columbarius</i>
Northern oriole	<i>Icterus galbula</i>
Northern parula	<i>Parula americana</i>
Northern waterthrush	<i>Seiurus noveboracensis</i>
Orchard oriole	<i>Icterus spurius</i>
Ovenbird	<i>Seiurus aurocapilus</i>
Prairie warbler	<i>Dendroica discolor</i>
Prothonotary warbler	<i>Protonotaria citrea</i>
Red-eyed vireo	<i>Vireo olivaceus</i>
Rose-breasted grosbeak	<i>Pheucitcus ludovicianus</i>
Ruby-throated hummingbird	<i>Archilochus colubris</i>
Scarlet tanager	<i>Piranga olivacea</i>
Summer tanager	<i>Piranga rubra</i>
Swainson's warbler	<i>Limnethlypis swainsonii</i>
Tennessee warbler	<i>Vermivora peregrine</i>
Verry	<i>Catharus fuscescens</i>
White-eyed vireo	<i>Vireo griseus</i>
Wood thrush	<i>Hylocichla mustelina</i>
Worm-eating warbler	<i>Helminthos vermivorus</i>
Yellow-billed cuckoo	<i>Coccyzus americanus</i>
Yellow-breasted chat	<i>Icteria virens</i>
Yellow-throated vireo	<i>Vireo flavifrons</i>
Yellow warbler	<i>Dendroica petechia</i>

Source: Eglin AFB 2010

## References

- Eglin AFB 2010      Eglin Air Force Base (Eglin AFB). 2010. Final Integrated Natural Resources Management Plan. February 2010.
- Tucker et al. 1996      *Neotropical Migrant and Resident Bird Species Among Habitats at Eglin and Tyndall Air Force Bases, Florida*. Alabama Cooperative Fish and Wildlife Research Unit, Auburn University. 1996.
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